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THE PLAGUE SITUATION.

Since the case noted in last week's issue of the Public Health Reports, one fatal case of plague occurred in Havana July 12 in the person of a Spaniard living in the section of the city known to be infected. This is the second case which has occurred in Havana. Up to July 14 no plague infection had been found among rats. For the purposes of quarantine and the prevention of the spread of the disease, that part of the city of Havana known as the old city will be considered to be infected. This includes a broad margin of uninfected territory surrounding the limited area of four blocks known to be infected. Deratization has been begun in this area, and special attention is being given to the deratization of wharves and of the section known to be infected.

In Porto Rico no case of plague was reported on July 11 and 12. On July 13, 2 cases were reported in the section of San Juan known as Puerto de Tierra. July 14, 1 fatal case was reported in Dorado, a town about 12 miles from San Juan. This is the first case in Dorado, and active measures were immediately instituted for the eradication and control of this focus. This makes to July 15, for all Porto Rico a total of 37 cases with 23 deaths. The work of plague control and eradication is well under way.

The Surgeon General of the Public Health and Marine-Hospital Service issued July 15, 1912, the following circular letter of instruction to officers in charge of quarantine stations:

TREASURY DEPARTMENT,
BUREAU OF PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE,
Washington, July 15, 1912.

Medical officers in command, and acting assistant surgeons in charge, national quarantine stations.

SIR: You are directed to fumigate throughout, for the destruction of rats, all vessels arriving from ports in South America (including the river ports thereof), and in the West Indies.

In the event that any of these vessels are carrying perishable cargoes, you are directed to remove, upon a wharf or lighter, during the fumigation process, such perishable cargoes, or else arrange with the bureau by telegraph for the fumigation of the vessel at the wharf of the port of arrival, said fumigation to be done under strict precautions as to the possible escape of rats from the vessel.

Respectfully,

RUPERT BLUE,
Surgeon General.

THE ERADICATION AND PREVENTION OF BUBONIC PLAGUE.[1,2]

By Wm. Colby Rucker, Assistant Surgeon General, Public Health and Marine-Hospital Service.

Plague is primarily a disease of rodents, and secondarily and accidentally a disease of man.[3] Man's safety from the disease lies in the exclusion of the rodent and his parasites. This is the basis of all preventive and eradicative work. If man can live in rodent-free surroundings he need have no fear of plague, because if there be no rodents there can be no rodent parasites, and for all practical purposes the flea may be considered as the common vector of the disease from rodent to rodent and from rodent to man. The eradication of bubonic plague therefore means the eradication of rodents.

In America we have two rodents which are comprehended in this problem, the rat and the ground squirrel, and apparently each plays a very distinct rôle in the propagation and perpetuation of the disease. The rat (*Mus norwegicus*, *M. rattus*, *M. alexandrinus*, and *M. musculus*) is distinctly domestic in its habits, and therefore comes in more or less intimate contact with man. It is also a frequenter of the great highways of the world, traveling long distances in ships and to a limited extent on trains. It is the producer of acute outbreaks, the conduit for the carriage of the virus from its perpetuating reservoir to the body of man. The ground squirrel (*Citellus beechyi*), on the contrary, is not a dweller in human habitations, does not travel except by short migrations, and is an almost negligible factor in the direct transfer of the disease to man. Its great function in the plague scheme is that of a rural reservoir from which from time to time the disease flows over to the suburban rat, thence to his city cousin and thence to man. This condition is not peculiar to America alone, since in China and Thibet the marmota (*Arctomys bobac*) and allied species perform a similar function.

The problem divides itself into two parts, (1) plague eradication and (2) plague prevention.

In the city the fight is directed against the rat and its parasites, and aims to prevent the spread of the disease from them to man. The campaign is conducted along the following lines:

PLAGUE-ERADICATIVE MEASURES.

I. DERATIZATION.[4,5]

1. Rat slaughter: (*a*) Poisons—chemical (solid and gaseous), biological; (*b*) traps—cage, snap, barrel, etc.; (*c*) shooting, clubbing, and other forms of violence; (*d*) natural enemies—cats, dogs, ferrets, etc.

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[1] Read before the Mississippi Valley Medical Association, Nashville, Tenn., Oct. 17–19, 1911.

[2] Reprinted from the Lancet-Clinic, Mar. 2, 1912.

[3] First, plague in rats,
And then in fleas;
Then plague in man
And quick decease.
No rats, no fleas,
No plague decease.

[4] For a fuller discussion of this important subject, see "The rat and its relation to the public health," Pub. Health Bull. No. 20. Pub. Health and Mar. Hosp. Serv., Washington, Government Printing Office, 1910.

[5] Deratization = to rid a certain area of rats.

2. Rat eviction: (*a*) Destruction rodent habitations; (*b*) rat-proofing—permanent, temporary, and by elevation.

3. Rat starvation: (*a*) Proper disposal of edible refuse; (*b*) rat-proofing of food supplies.

4. Prevention of rat multiplication: (*a*) All the above; (*b*) harrying.

II. DEPULIZATION.[1]

1. By the destruction of the host.

2. By direct destruction of the flea itself.

(*a*) Disinfection of rodent habitations and human habitations in which human or rodent cases have been discovered; (*b*) pulicides—CS_2, kerosene, chlorinated lime, etc.; (*c*) ordinary domestic cleaning methods; (*d*) pneumatic suction apparatus; (*e*) depulization of domestic pets.

III. DELINEATION OF THE INFECTED ZONE.

1. Inspection of: (*a*) The human dead; (*b*) the human living; (b^1) contacts to human and rodent cases; (b^2) in infected localities.

2. Examination of rats. (*a*) Macroscopically; (*b*) bacteriologically.

3. Plague barometers.

IV. PREVENTION OF THE SPREAD OF THE DISEASE.

1. From man: (*a*) Isolation; (a^1) actual cases; (a^2) suspicious cases; (*b*) disinfection; (b^1) environment—habitation, clothing, etc., cases; (b^2) excreta (sputum in pneumonic cases).

2. From rats: (*a*) Prevention rat migration; (a^1) via natural avenues (sewers, etc.); (a^2) via vehicles (trains and ships).

3. By education of the general public.

In the country the measures follow the same general line as in the city and are modified only to meet existing conditions, such as the species of the rodent to be combated, the density of the population, and the different character of the buildings. In America, the only rural animal found to have plague, if we except a single instance of plague infection in the wood rat (*Neotoma fuscipes*), is the ground squirrel (*Citellus beechyi*); therefore attention is focused on the latter species. From the city and the national viewpoint this is plague preventive work; from the country point of view it is plague eradicative work. To avoid confusion, it will be classed as a preventive measure, because the work of decitellization is a protective measure of national and international importance.

The work of prevention is directed against the rodent and its parasites lest they import and nourish the seeds of pestilence, later to distribute them to mankind. The plan of campaign is as follows:

PLAGUE PREVENTIVE MEASURES.

I. URBAN.

1. Legal: (*a*) Rat-proofing ordinances; (*b*) garbage and refuse-disposal ordinances; (*c*) sanitary regulation of food storehouses, stables, bakeries, warehouses, etc.; (*d*) notification and inspection in suspicious illnesses or deaths.

[1] Depulization—to rid a certain area of fleas.

2. Physical: (*a*) Quarantine against rats—outgoing, incoming; (*b*) rat proofing of wharves and railroad warehouses; (*c*) periodical disinfection of ships; (*d*) laboratory examination of rodents.

II. SUBURBAN.

1. All the foregoing.
2. Creation of ground-squirrel free zones.

III. RURAL.

1. Decitellization: (*a*) Trapping, hunting, poisoning; (*b*) laboratory examination to discover new foci of infection and to delineate their boundaries; (*c*) public education and cooperation.
2. Inspection of: (*a*) The human dead; (*b*) suspicious human illnesses.

PLAGUE-ERADICATIVE MEASURES.

I. Deratization.

1. *Rat slaughter.*—It should be borne in mind that when the extermination of a given species is to be attempted reliance can not be placed on any single method. The tremendous fertility of the rat and its ability to survive in the most unfavorable environment makes it necessary that the campaign of deratization be approached simultaneously along every avenue of murine existence.

(*a*) Poisons: When skillfully prepared and intelligently distributed, poisons kill off a certain percentage of the rodent population. This measure has proven very efficacious in the hands of the United States Public Health and Marine-Hospital Service at San Francisco. The biological products depend largely upon the bacillus *Typhi murium* of Loeffler, and aim at the production of epizootics which are not harmful to man. Unfortunately, this has not proven a very certain or satisfactory means of killing rats, and moreover this organism is pathogenic for man.

The chemical poisons, such as arsenious acid and phosphorus, on account of their cheapness and certainty of action, have given very good results. Of the two, phosphorus is perhaps preferable, owing to the fact that rats seem to take it better. Barytes (crude barium carbonate) will kill rats, but on account of its metallic taste is not readily taken by them. Strychnine is a valuable agent, but is expensive, and because it is often distributed on the small grains is less convenient to handle and is more dangerous to children and domestic animals. When used in grain it is more apt to be taken by birds, whose death will usually raise a storm of protest from the lover of the song birds. When used to kill rats, a favorite method of distribution is to split open a prune and place the toxic agent in the center. Powdered squills is sometimes used, and is toxic for rats.

Whatever the agent employed, it should be distributed in as attractive a menstruum as possible. In the case of arsenious acid, it should be incorporated in a base of some fatty material, such as lard sweetened with sugar, flavored with oil of anise or musk, and colored a light pink. Phosphorus is most safely incorporated in glucose. Its liability to spontaneous combustion should be borne in mind. It is well to change the base frequently, alternating between cheese, lard, mutton fat, corn meal, and ground fish, such as salmon. The mass should be of such consistency as to permit its spreading easily on slices of bread,

which are afterwards cut into small cubes about three-eighths of an inch square.

In distributing poisons care must be observed lest they be taken by children or domestic animals. An accurate record should be kept of every place in which poisons have been put, and frequent inspections should be made to determine the results obtained. When it is decided to cease poisoning in a certain neighborhood, it is wise to collect any remaining portions of the toxic morsels lest they be taken in some unexpected way in the future.

(*b*) *Traps.*—Trapping rats not only assists in decreasing their numbers, but also enables us to detect murine epizootic plague by laboratory methods in time to prevent its becoming human epidemic plague. Their long association with man has given rats a wary cunning which is remarkable, therefore trapping is an operation requiring great ingenuity and patience, as well as a thorough knowledge of their habits. The large wire cage has the advantage of catching the animals alive, and very frequently more than one at a time. In certain situations, however, the snap, guillotine or dead fall traps seem to give better results. In placing traps the environment should be changed as little as possible and advantage taken of the usual rodent runways. It should be borne in mind that in daylight the rat's eyesight is somewhat defective, producing an agoraphobia, but by depending on their vibrissæ they can run along a side wall with celerity and ease. Traps therefore should not be placed in large open places, but in a narrow runway or beside a wall. Great care should be exercised in choosing baits; they should be changed frequently, and should be some delicate, odorous morsel which the rat is not in the habit of getting. Traps should be visited, emptied, and reset every other day.

Barrel traps are useful in warehouses where rats exist in great numbers. They consist of a cask half full of water and having a lid which will tilt and precipitate the animal into the water beneath. A large piece of rancid cheese attached to the middle of the lid serves to attract the rat. A board, one end of which rests on the floor and the other on the chimes of the barrel, insures the approach of the rat from the proper side.

Captured rats should be labeled to show where, when, and by whom secured. They should be treated with some efficient pulicide for the protection of those handling them, and if they are to be examined they should be transported to the laboratory in flea-proof containers.

In cold-storage warehouses rats have been successfully eradicated by suspending a bait between two heavily charged overhead electric wires from which the insulation has been removed for a short distance. The hungry rodent, crawling over the wires, shunts the current through its body and falls unconscious into a tub of water in which it is drowned.

There has been patented a system of tunnels and traps to be installed into ships at the time of construction. It includes registering devices to indicate the number of rats in the trap, and after a sufficient number have been captured they are driven into a pit where they are killed with gas and then removed. The system was installed into a hotel at Coronado Beach, Cal., and seems to promise much.

(*c*) *Shooting, clubbing, and other forms of violence.*—In situations in which rats are unusually abundant—e. g., abattoirs, stockyards, food

markets, and provision warehouses—large numbers may be killed by shooting with a .22-caliber rifle or by "rat drives," the animals being forced into some confined place and killed with clubs or large knives. This measure is rarely of any great value.

(*d*) *Natural enemies—cats, dogs, ferrets, etc.*—As natural enemies of the rat, dogs, cats, weasels, ferrets, snakes, and owls take first place. In the open, owls are very successful rat catchers, and in certain latitudes nonpoisonous snakes have proven effective in ridding warehouses and stores of rats. Dogs, cats, weasels, and ferrets are very useful in decreasing the rodent population, but on account of their susceptibility to pest it is deemed wise to limit their activities to normal times, lest they carry the disease from their prey to man.

2. *Rat eviction.*—The homeless rat is exposed to the attacks of its predatory enemies; it has little chance to multiply, and it must constantly be on the lookout for new sources of food supply. Rat eviction is of value in another important way—it removes the rat from the home of man. If this eviction is permanent, the danger from plague has been removed.

(*a*) *The destruction of rodent habitations.*—This is important not only in that it evicts the rat but it also affords an opportunity to kill the fleas which are generally found in the rat nests. Furthermore, the tearing up of old sidewalks and planked-over back yards is the first step toward their replacement with concrete or similar rat-proof material. When the rat warren is in piles of rubbish, its destruction is of value as a clean-up measure quite as much as an antipest measure.

(*b*) *Rat proofing, permanent, temporary, and by elevation.*—Of all the antiplague measures yet devised by man the one which is of greatest and most lasting value is permanent rat proofing. A rat-proof city shall not fall from plague. Rat proofing acts not only as a means of plague eradication—it is the fortification against its subsequent attacks. The subject is therefore of great importance to the general public both from the sanitary and commercial viewpoints. Rat proofing serves the purpose of protecting the inmates of the building from plague and of excluding the rat from its food supply and habitation. It is the insulation against the rat which is to be applied as a general measure in all plague-infectible localities, especially those which have suffered from predations of the disease. Permanent rat proofing costs money, but it must be regarded as plague insurance both from the commercial and the humanitarian aspect.

Concrete has been found to be the best rat-proofing material for general use. It is fairly cheap, and its permanency is unquestioned. Concrete foundations, basements, and floorings should be installed in houses, stables, warehouses, and markets where food products of any sort are stored. Particular attention should be paid to buildings or places where domestic creatures are fed. This applies particularly to chicken yards, which, on account of the amount of uneaten food usually scattered about, are overrun with rats. If the yard be paved with concrete and provided with rat-proof wire screening, the chicken yard will be less of a menace.

Galvanized iron has been used as a temporary makeshift, but is not wholly satisfactory. If used, it should be regarded as a temporary measure only.

If buildings are elevated 18 inches above the surface of the ground, and free access to the space beneath allowed for ingress and

egress of the natural enemies of the rat, rat-proofing by elevation is secured. This measure is of value in treating small frame structures in which other methods of rat-proofing are contraindicated by reason of their cost. It is a temporary measure.

Whatever method of rat-proofing is used, it should be remembered that rats will enter a building through doors and windows, hence these should be carefully guarded against rodents. Rats (particularly the *M. alexandrinus*, which, fortunately, is not plentiful in the United States) will also enter buildings by way of the roof, hence this avenue of ingress should be closed against them.

3. *Rat starvation.*—It is useless to expect the rat to take poisons or to be attracted by the baits in traps as long as there is an abundance of food which can be easily obtained. Therefore rat starvation is an eradicative and preventive measure of great importance. Furthermore, rats, like every other living creature, will not stay where there is an inadequate food supply. This probably accounts for the various migrations of rats described in so many different countries.

(*a*) *Proper disposal of edible refuse.*—The days when the rat served as the public unpaid scavenger are passing. The health departments of the large cities now require the disposal of garbage in water-tight well-covered metal containers, and the careful collection of such material in covered wagons and its final destruction by incineration or reduction. This is an important sanitary measure, not only on account of its effect on rats, but also because of its effect in doing away with a breeding place for flies. Equal care must be taken in the disposal of wastes from vegetable, fruit, and meat markets. Other waste products, such as stable manure, which furnishes both bed and board for the rat, should be stored in metal-lined boxes, which are frequently emptied and the contents incinerated or shipped to the country for use as fertilizer.

(*b*) *Rat-proofing of food supplies.*—Groceries, meat, fish, vegetables, and fruit markets, restaurants, bakeries and all places where food is prepared or sold for human consumption, are great dispensers of rat pabulum. The barriers to be erected against rats will vary according to the nature of the premises. Markets and other places where foods are constantly being shifted about should be well protected against rats by the use of heavy wire screening with not over one-half inch mesh. Elevators and other places for the storage of grains or hay should be rat-proofed and cats installed to keep them rat free.

(4) *Prevention of rat multiplication.*—The starved and evicted rat, harried from place to place by the incessant warfare which is being waged against him, "remote, unfriended, melancholy," has small chance of multiplying. The Japanese observers have argued that as the rat population diminishes, the breeding rate among the survivors increases because of the relative increase in the food supply and the number of rat-harboring places. If deratization has been attempted by a simultaneous, systematic attack on the rats' home and source of aliment, conditions unfavorable to breeding are brought about. It is probably impossible to absolutely exterminate the species in a given city, but this is not absolutely necessary to the eradication of plague. If the rat population is kept within fairly few limits and is not congested, rat plague will die out from purely natural causes. Or, should it be introduced into a sparse and scattered rodent community, the disease will soon exhaust the material necessary for its perpetuation.

II. Depulization.

The flea is the intermediate agent for the transference of the germs of plague between the body of the moribund rat and that of another rat or of man. If we rid ourselves of the mammalian host on which this insect lives, we need have little concern about the rat flea. In time of epizootic or epidemic plague it is necessary, however, that every factor in the transmission of the disease be taken into consideration.

(*a*) *Rodents' habitations.*—During the destruction of rodent habitations, large numbers of fleas are met with in the rat nests, which are most commonly found beneath wooden floors and lumber piles and in accumulations of rubbish and manure. Some of these fleas may be pest infected, certainly all are capable of becoming plague-germ vehicles; therefore their destruction is necessary. It is even more important that fleas be killed in human habitations in which human or rodent cases have been discovered.

The flea is covered with a heavy chitinous armor, and breathes through a row of small openings or spiracles situated laterally along the abdomen. This is the flea's vulnerable point, hence the attack on this insect is made through its respiratory apparatus. Fumigation with sulphur dioxide is probably as good a method as we possess. Formaldehyde is valueless as an insecticide. The sprinkling of fresh chlorinated lime in rat nests will kill the resident fleas at all stages of their development. Liberal applications of crude cresylic acid also seem effective. An emulsion of water and kerosene, distributed in a fine spray is a fairly efficient pulicide, especially when mixed with banana oil and wood alcohol.

(*b*) *Ordinary domestic cleaning methods.*—It is desirable, both for the comfort and safety of persons living in the infected zone, that their houses be kept flea free. The frequent beating of rugs and carpets in the bright sunshine and the thorough removal and incineration of dust will kill many fleas and destroy their eggs. The treatment of floors with a kerosene emulsion or similar pulicide will kill the eggs, larvæ, and nymphs in the floor cracks.

(*c*) *Pneumatic suction apparatus.*—Many of the pneumatic cleaning devices now on the market will completely remove the dust from carpets, rugs, hangings, and furniture. Inasmuch as it is in dust that flea eggs are found, its removal and destruction will rid a building of fleas. This measure is particularly important in places of public congregation, theaters, churches, and schools, which are usually not well cleaned by the ordinary methods.

(*d*) *Depulization of domestic pets.*—There are many houses in which fleas persist in spite of careful cleaning and the liberal application of pulicides, and it is not uncommon to find that a cat or dog is the flea importer. The remedy is obvious, either to exclude such animals from the house or to keep them flea-free by frequent baths.

III. Delineation of Infected Zone.

It is essential to the successful conduct of an antiplague campaign that accurate knowledge be secured as to the extent and distribution of the infection, both in the human and rodent populations.

1. *Inspection of* (*a*) *the human dead.*—When plague makes its appearance in a community, ignorance prompts its concealment.

Furthermore, its diagnosis will puzzle anyone who has not seen the disease or who is not expecting to discover a case. Then, too, there is always the fear of injury to commercial interests, a psychological phenomenon which would eradicate disease by proclamations and denials. The inspection of the human deaths, particularly among Asiatics, is therefore an important measure. It is usually accomplished by refusing to grant a burial permit until the body has been viewed by an authorized inspector. Necropsies should be held in doubtful cases.

Inspection of (*b*) *the human living.*—It is equally important that living human contacts to both (a^1) human and (b^1) rodent cases be kept under serveillance until this period of incubation is past. This is not an eradicative measure in the strictest sense of the word, because, in the absence of ectoparasites man is an almost negligible factor in the spread of the disease, but it is of value in that it affords opportunity for the early administration of prophylactic or curative treatment. For the same reason it is well to keep all persons who live in heavily infected districts under fairly close observation.

(2) *Examination of rats.*—As has been noted above, the discovery of the infection among rodents is of value, in that it affords an index of the extent and distribution of the epizootic, so that immediate steps may be taken to prevent the disease being transferred to man. It is a measure which should be a routine practice in all large seaports lest the disease should be imported and smoulder in the rodent population, its arrival being discovered only after human beings have been attacked. It is not difficult nor expensive, and will pay for itself in the security from plague which it affords, at the same time preventing the commercial losses which are attendant on the announcement of the appearance of the disease among human beings.

The rats to be examined are freed of their ectoparasites by immersion in some efficient pulicide and tacked to shingles. After a record has been made of the place and date of capture, the skin is reflected from the ventral surface and the occurrence of subcutaneous injection and glandular enlargements noted. The peritoneal and thoracic cavities are then opened and the condition of their contents observed. The gross pathological lesions of plague are so characteristic that the layman of average intelligence readily learns to recognize them. In the plague laboratory of the United States Public Health and Marine-Hospital Service at San Francisco all rats having suspicious lesions are laid aside by the attendants engaged in performing rodent necropsies, and are later gone over carefully by the bacteriologist, who verifies or disproves the diagnosis by the usual microscopical and bacteriological technique.

3. *Plague barometers.*—Another method of outlining the plague zone has been by the use of the guinea pig as a plague barometer. Taking advantage of the natives' love of household pets and the propensity of the flea to get on the guinea pig, the Indian Plague Commission placed two or three guinea pigs in each house in the infected zone. Householders were instructed to notify the health authorities as soon as a pig sickened or died. The sick or dead pig was then examined, and if found to be plague-infected the premises from which it was taken were subjected to the usual antiplague disinfection and other measures.

IV. Prevention of the Spread of the Disease.

Once having delineated the infected zone, it is the endeavor of the sanitarian to prevent its enlargement and to protect those living in the zone itself.

1. *From man.*—As has been previously pointed out, in the absence of ectoparasites, man plays a small rôle in the spread of plague.

(*a*) Isolation affords a way to separate (1) actual and (2) suspicious cases from their parasites, and is a wise measure. It also reacts to the benefit of the patients themselves, as it insures their treatment by persons who have acquired skill in the treatment of plague.

(*b*) Disinfection of the (1) environment from which the patient has been removed is important, not only because of the destruction of the insects and bacteria, but also because of the effect it has on the general public. The disinfection of the (2) excreta is indicated in the pneumonic cases in which the sputum is loaded with the plague bacillus. The stools and urine are not known to be infectious.

2. *From rats.*—The prevention of the spread of the disease from rats has been fully discussed under the headings "Deratization" and "Depulization," but it may be noted that the prevention of rat migration has an effect in preventing the scattering of the seeds of pestilence. When rats are cut off from their homes and food supplies, they naturally will migrate through sewers and other subterranean passages, but occasionally over land. All openings into sewers which could be used as rat runways should be closed or rendered impervious to rats. The idea should be not to keep the rat out of the sewer, but to keep him *in* the sewer, where he is harmless to man. The prevention of rat migration by trains and ships will be discussed elsewhere in this paper.

3. *By the education of the general public.*—It may be taken as axiomatic that no public-health campaign can succeed in its fullest extent without the intelligent cooperation of the general public. It is not to be expected that the public will lend their aid in the suppression of a disease about which they know little and of whose existence in their community they are usually very doubtful. There is only one way to meet this phase of the problem, and that is by the education of the public as to what plague is, how it is carried, and what the public's duties are in its prevention and eradication. The exact truth as to the situation should be told, and if the lesson is repeated often enough and patiently enough surprisingly good results will be obtained. Every walk of life, every stratum of society, should receive this instruction; the business interests, the women's clubs, the churches, the schools, the social organizations must be included in this campaign of publicity. Every householder unconsciously becomes a sanitary inspector; every housewife, as she puts the lid carefully on the garbage can, becomes an agent of the department of public health; every schoolboy reads into the familiar lines about the cat and the mat and the rat the great lesson of plague. Truly, publicity is the handmaid of sanitary science, particularly with regard to bubonic plague.

PLAGUE PREVENTIVE MEASURES.

Urban.

The foregoing outline of the eradicative measures to be used against plague naturally suggests those to be put in force for its prevention. Until efficient barriers have been erected against the

rat, there is no maritime commercial center in the world which can be regarded as free from the danger of pest invasion.

1. *Legal.*—In both the city and the country laws are necessary to enforce the destruction of rodents and to bring about their isolation from the home of man. This should be, first, a matter of State law, declaring the presence of rodents in and about places of human occupation to be a menace to health; and, secondly, requiring that property holders make a reasonable effort to prevent the residence of rodents on their premises. The law should also provide a penalty for its infraction. The States of California and Idaho have enacted such laws. Cities and counties may accomplish much the same result by ordinances, and may make further provisions as their needs require.

(*a*) *Rat-proofing ordinances.*—Rat-proofing ordinances should be specific and should state the character of the rat proofing which shall be used in the different classes of buildings. Boards of health should be charged with the enforcement of such ordinances and should be given power to condemn rat harbors, or to order their rat proofing under penalty of condemnation after a reasonable time has been given in which to complete their rat proofing. Such measures, if enforced, guarantee "building the rat out of existence," and, aside from their value as a plague prophylactic, prevent much destruction by rats, and in some instances by fire.

(*b*) *Garbage and refuse disposal ordinances.*—Ordinances relative to the manner of disposal of wastes, particularly those which furnish rat pabulum, should be enacted and enforced. The water-tight metal garbage can with close-fitting lid should be the standard, and the ordinance should carry a penalty for the disposal of garbage in any other receptacle and should state the degree of cleanliness in which the can is to be maintained. The collection in sanitary vehicles and final disposal of the collected materials should also be regulated by ordinances enforced by the board of health. Wastes from food markets, both wholesale and retail, require similar careful regulation.

(*c*) *Sanitary regulations of food storehouses, stables, bakeries, warehouses, etc.*—Unregulated places where food is stored or prepared furnish an ideal environment for rat habitation and propagation, unless great care is taken. Ordinances requiring that they be maintained in a cleanly, rat-proof and rat-free condition react not only to the prevention of plague, but also to the general health of the community. It was found that the antiplague work done by Surg. Rupert Blue, of the United States Public Health and Marine-Hospital Service in San Francisco, not only eradicated plague but also reduced very greatly the incidence of infectious diseases in that city. It is also interesting to note in passing that the sanitation of the stables in that city not only reduced the number of rats and flies very greatly, but also caused a great falling off in the diseases of horses.

(*d*) *Notification and inspection of suspicious illnesses or deaths.*—In cities which have had plague, or which are in steamship communication with ports in which plague exists or has existed, physicians should be required to report to the health department all cases which are actually plague or suspected of so being. Such ordinances, if occasionally brought to the practitioner's notice, keep before his mind the possibility of the occurrence of plague in his practice.

2. *Physical.*—(*a*) *Quarantine against rats, incoming, outgoing.*—Since the prime object of plague preventive work is the reduction of the rodent population, it is necessary that the importation of rats be prevented. It is also important that the exportation of rats from infected ports be prevented. The best way to accomplish this is by periodic fumigation of ships, the great disseminators of plague. "Where ships go, there plague will go." Therefore vessels should be fumigated just prior to sailing from infected ports, lest they carry plague rats as an unwelcome addition to their cargo. Ships not so fumigated should be fumigated on arrival. If the nations of the world would cooperate to secure the periodic fumigation of ships to kill rats, and would undertake the surveillance of outgoing passenger and freight traffic at infected ports, ship-borne plague would become a thing of the past. Probably the best agent for fumigation to kill rats is sulphur dioxide. To be effective, every compartment in the entire ship must be treated simultaneously with gas of a minimum strength of 3 per cent, five hours' exposure being given. If ships are fumigated prior to taking cargo, care must be observed lest they again become rat infested, the rodents being carried into the holds in freight, or by climbing on board by way of the mooring tackle. Freight should be inspected prior to loading, and cargo originating in rat-infested surroundings should not be accepted for shipment. Vessels should be sheered off from the dock, and all lines and timbers over which rats could pass to the ship should be guarded by large metal funnels securely lashed on. (*b*) As an aid to the prevention of the shipment of rodents in freight, wharves and warehouses should be rendered rat proof and maintained rat free.

Rural.

In the foregoing we have considered the prevention and eradication of epizootic rat plague. Let us now take up the question of enzootic plague as it applies to the ground squirrel. The function of this species as a perpetuating reservoir for plague had already been suspected for some time, but it was not until the autumn of 1908 that plague-infected ground squirrels were found in nature. This discovery was made in Contra Costa County, Cal., and it was immediately seen that a new plague focus had been uncovered and that it must be rapidly delineated. This work has been actively prosecuted since the spring of 1909 by the United States Public Health and Marine-Hospital Service, and the infection has been found in the ground squirrels (*Citellus beechyi*) of 11 counties, or about one-seventh of the total area of California. It should be noted that the operations of 1911 have demonstrated the infection in only seven of the originally infected counties, the eradicative measures apparently reducing the area of infection. Some conception of the magnitude of these operations may be grasped from the fact that in the 26 months ending June 30, 1911, 252,743 squirrels have been secured, of which 250,666 have been examined for plague infection, and out of this number 483 have been found to have the disease. For the most part, plague exists in chronic form in the ground squirrel, but occasionally small areas are found, the squirrels from which present the lesions of acute plague. Experiments have proven that the squirrel flea (*Ceratophyllus acutus*) will transmit plague to

rats, and that the rat flea (*Ceratophyllus fasciatus*) will carry the disease to squirrels. The chronicity of the disease in squirrels insures its perpetuation without the extermination of the host species. The ability of the squirrel flea to transmit the disease to rats permits the spread of the disease from the rural squirrel to the city man through the chain of suburban and urban rats. Furthermore, the gradually enlarging boundaries of the disease among ground squirrels forecasts its continued spread throughout the species. This is the most serious aspect of the problem, because the citellus is a widely distributed species.

Beginning with Oregon and Washington on the west, the life zone of the *Citellus columbianus* extends eastward across Idaho, Montana, North Dakota, and South Dakota to mid-Minnesota. Northern California is occupied by the *Citellus douglassi*, while the central and southern portions of that State are inhabited by the *Citellus beechyi*. This species occupies the lower mountain passes and is thus in contact with the *Citellus grammurus*, whose life zone extends from the southern border of the distribution of the *Citellus columbianus* on the north to the Rio Grande on the south. On the southern half of the eastern border of California the *Citellus grammurus* is bounded by the *Cittellus fisheri*, while its eastern limitation is the *Citellus franklini*, which has been found as far east as mid-Michigan. It is also probable that the *C. franklini* is distributed to a certain extent in the Eastern States, as colonies are known to exist in western Massachusetts. The *C. fisheri* is distributed in a narrow strip along the lower half of the eastern border of California.

From the foregoing it may be deduced that the spread of the disease in the ground squirrel might some day cover the Nation with a pall of plague reaching from the Pacific to the Alleghenies. Fortunately, the work of eradicating the focus has been begun in time and is being relentlessly prosecuted.

1 *Decitellization*.[1]—The lines of attack are very much the same as in the combat against the rat, due allowance being made for the difference in habits and environment of the two species.

(*a*) *Trapping, hunting, and poisoning.*—Many ground squirrels may be caught in spring traps or snares. These should be marked by a rod about 3 feet long and bearing a small red flag on the top. This prevents loss of traps. Traps should be visited every few hours, lest the catch be stolen by birds or small mammals. Snares should be made of brass wire. They are useful in taking samples for laboratory work, because the squirrel is not injured in any way. It should be borne in mind that squirrels do not live long when caught in a trap and exposed to the sun.

The shotgun is the best weapon for hunting squirrels either for laboratory examination or eradication. Twelve or sixteen gauge guns and number eight shot seem to give best results.

Strychnine is a valuable agent in poisoning squirrels, but has the disadvantage of being taken by other animals and by birds. Carbon bisulphide is very useful and kills them readily, if put in the squirrel burrows properly. It also has the advantage of killing the fleas in the burrows at the same time.

[1] Decitillization—to rid a given area of ground squirrels.

(*b*) All squirrels secured, whether shot, trapped, poisoned, or found dead, should be subjected to laboratory examination. The technique is the same as for rats.

(*c*) *Public education and cooperation.*—What has been said of the value of public plague education in cities applies with equal force to the country. The farmer must be taught how to kill ground squirrels and he must be encouraged to rid his premises of them. He is usually very glad to do this, on account of the destructiveness of the citellus to crops, and it is not hard to secure his cooperation.

2. *Inspection of* (*a*) *the human dead and* (*b*) *suspicious human illnesses.*—If man would let the squirrel severely alone there would be little danger of contracting plague from it direct, but, unfortunately, this is not always done. In the case of hunters and persons engaged in handling rats and squirrels they may be Haffkinized, but thus far the general public has not taken very kindly to this method of protection, and cases from ground squirrels are so rare in proportion to the number of people handling them that this means of prophylaxis can not be urged. However, one or two cases of plague occur each year from contact with squirrels; therefore it is wise to insist on an inspection of the dead in the infected area during the period of greatest epizootic plague prevalence. An inspector should always be available for the inspection of cases of human illness which are thought to resemble plague.

Suburban.

1. *The creation of ground squirrel free zones.*—It has been shown above that plague is transferred from the country ground squirrel to the city rat by way of the suburban rat, and that the transfer in each case takes place in the area in which their life zones overlap. If this area be decitellized, then the danger of the transference of the disease from rural ground squirrel to suburban rat is obviated. This is sound in both theory and in practice, for it has been found in California, where a great squirrel free zone has been thrown about the Bay cities, that rat plague does not exist at present in them, despite the fact that it exists in the country squirrels thereabouts. This zone is kept free of squirrels by a patrol of hunters and trappers and forms an efficient barrier against the introduction of plague from the rural focus.

UNITED STATES.

MUNICIPAL ORDINANCES, RULES, AND REGULATIONS PERTAINING TO PUBLIC HYGIENE.

[Adopted since July 1, 1911.]

HACKENSACK, N. J.

PIGS—KEEPING OF.

SECTION 1. No person or persons shall have or keep or allow to be kept in any building or premises, or on any lot of ground, of which he or they may be the owner, tenant, lessee, or occupier, any pigs, of any age or description, if in the opinion of said board of health the keeping of said pigs be deemed injurious to the public health.

SEC. 2. Any person violating any of the provisions of this section shall forfeit and pay a penalty of not less than $10 and not more than $25.

[Ordinance, board of health, adopted Dec. 21, 1911.]

NEWBURGH, N. Y.

SMOKE, SOOT, DUST, ETC.—PREVENTION OF.

Resolved, That it shall not be lawful, within the limits of the city of Newburgh, for any person or persons, firm or corporation, or any servant, agent, or employee of any person, firm or corporation to permit or allow, or cause to be permitted or allowed, the discharge or escape into the open air of large quantities of smoke, soot, dust, steam, or offensive odor to escape in such manner or in such quantities as to cause, or have a natural tendency to cause injury, detriment, or annoyance to any person or persons, or the public, or to endanger the comfort, repose, health, or safety of any person or persons or the public, or in such a manner as to cause or have a natural tendency to cause injury or detriment to business, merchandise, goods, or property.

Any person who shall violate any of the provisions of this ordinance after due publication thereof, shall be guilty of a misdemeanor, and in addition thereto, shall be liable to a penalty of $50 for each offense.

[Ordinance, board of health, adopted Sept. 23, 1911.]

PERU, IND.

NUISANCES.

SECTION 1. Be it ordained by the common council of the city of Peru, Ind., that it shall be unlawful and it shall be a nuisance for any owner, person, persons, company or corporation to erect, construct, cause, permit, keep or maintain within the limits, or within one-half mile of the limits of said city, anything whatsoever which is injurious to health, or indecent or offensive to the senses, or an obstruction to the free use of property, and any owner, person or persons maintaining any nuisance as above set forth is declared to be the author and maintainer of a nuisance.

SEC. 2. It shall be unlawful for any owner, person, persons, company or corporation to throw or deposit, or suffer to be thrown or deposited, or suffer or permit any child, servant, member of the family, or other person under his, her or their control to throw or deposit any manure, rubbish, slops, putrid or unsound animal or vegetable matter, or any filthy, noisome, or unwholesome liquid or slops, or any liquid or slops or any substances that are liable to become unwholesome, in or into or upon any street, lane, road, alley, sidewalk, gutter, crossing, lot, cellar, premises or common within the city limits or within one-half mile of the city limits. It shall be unlawful for any rank weeds to be allowed to grow on any ground within the city limits or within one-half mile of the city limits. Notice of the cutting of weeds may be given by publication in the city papers, by police officers or the written order of the health officer.

[Part of ordinance No. 18 adopted July 11, 1911.]

ST. PAUL, MINN.

COMMON TOWELS—USE OF IN PUBLIC OR SEMIPUBLIC PLACES PROHIBITED.

SECTION 1. That no person, firm or corporation owning, in charge of or in control of any lavatory or wash room in any hotel, restaurant, factory, store, office building, school, public hall, railway station or public place or building, shall maintain in or about such lavatory or wash room any towel for common use, nor shall they expose for use or allow to be exposed for use any towel to be used by more than one person, such as that now known as the roller towel.

The term "common use" as used in this ordinance shall be construed to mean for use by more than one person.

SEC. 2. Any person, firm, or corporation violating any of the provisions of this ordinance shall be guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than $5 or by imprisonment for not less than 5 days nor more than 25 days.

SEC. 3. This ordinance shall take effect and be in force from and after its passage and publication.

[Ordinance adopted Oct. 6, 1911.]

UNION (TOWNSHIP), N. J.

GARBAGE AND REFUSE.

SEC. 26. That all owners, lessees, tenants, or occupants of any and all lots and lands within the limits of the township of Union shall keep the sidewalks and streets in front of such lots and lands free from filth, slops, dirty water, rubbish, or any other thing dangerous to health, life, or limb.

SEC. 27. That the proprietor, agent, lessee, tenant, or occupant of any tenement house or restaurant, saloon, or any other premises where any refuse matter, offal, or shells from oysters or other shell fish shall accumulate, shall daily cause such shells, offal, or refuse matter to be removed to some proper place, and shall keep such premises at all times free from offensive smells and accumulations.

SEC. 28. That the owner, agent, lessee, tenant, or occupant of every dwelling, market, restaurant, or other premises where refuse matter shall accumulate in the township of Union shall provide and keep on the premises suitable barrels or receptacles for receiving and holding garbage.

SEC. 29. That no rags, bones, scraps, or refuse matter of any kind shall be brought into or be sorted or kept stored in any building or in or upon any lot or premises within the limits of the township of Union, except on a permit of this board, said board to reserve the right of revocation of said permit at any time.

SEC. 30. That no cart or other vehicle for carrying any offal, swill, garbage, or rubbish, or the contents of any privy vault, cesspool, or other receptacle for filth, or having upon it or in anything upon such cart or vehicle any manure or other nauseous or offensive substance, shall, without necessity therefor, stand or remain, nor shall a needless number gather before or near any building, place of business, or other premises where any person may be. Nor shall the person using said cart or vehicle occupy an unreasonable length of time in loading or unloading or in passing along any street or through any inhabited place or ground; nor shall any such cart or vehicle or the driver thereof, or anything thereto appertaining, be (or by any person having the right to control the same, be allowed to be) in a condition needlessly filthy or offensive; and when not in use all such carts, vehicles, and implements used in connection therewith shall be stored and kept in some place where no needless offense shall be given to any inhabitants of said town.

SEC. 31. That all carts and vehicles in the last section mentioned, and boxes, tubs, and receptacles thereon, in which any substance in said section referred to may be or be carried, shall be strong and tight, and the sides shall be so high above the loads or contents that no part of such contents or load shall fall, leak, or spill therefrom. And that when, in the opinion of this board, it is necessary to prevent the contents of such carts or vehicles, tubs, or boxes or receptacles from being offensive, each of such carts, tubs, or boxes and receptacles shall be adequately and tightly covered, as the orders and regulations of this board may provide or direct.

SEC. 32. Any person or persons or corporations who shall fail to comply with or violate any of the provisions of sections 26, 27, 28, 29, 30, or 31 of this code shall, on conviction thereof, forfeit and pay a penalty of $10.

[Part of ordinance adopted Dec. 11, 1911.]

WILMINGTON, N. C.

SMALLPOX—QUARANTINE OF HOUSES.

SECTION 1. That the city superintendent of health is empowered to quarantine any house or household wherein smallpox exists or has so recently existed as to be a menace to health.

SEC. 2. That any member of such household or any other person violating the quarantine imposed by the said superintendent of health shall be fined $10 for each offense.

[Ordinance adopted Oct. 31, 1911.]

YONKERS, N. Y.

GARBAGE, REFUSE, AND CONTENTS OF PRIVIES AND CESSPOOLS—HANDLING AND DISPOSAL OF.

Offensive matter forbidden to run on streets, etc.

SEC. 90. No offal, garbage, refuse, rubbish, dead animals, putrid animal or vegetable matter, swill, brine, manure, urine, excrement, and no part of the contents of any sink, privy, vault, or cesspool, and no filthy or offensive matter of any kind shall be thrown or allowed to run, drop, go, or remain in or upon any street, public place, dock, or pier in the city of Yonkers.

Emptying of cesspools and privies.

SEC. 91. No owner, tenant, or occupant of any building or premises in the city of Yonkers shall employ, cause, or permit any person, except a licensed scavenger or person authorized by the health bureau, to remove any part of the contents of any vault, privy, sink, or cesspool (being thereon and of which he has control) unless according to a permit from the said board of health; and no person shall empty or attempt to empty any vault, privy, sink, or cesspool in said city without a permit from the health bureau; and no owner, tenant, agent, or occupant of any building or premises in said city shall bury or cause or allow to be buried the contents of any privy, vault, or cesspool in the city of Yonkers without a permit in writing from the health officer.

Receptacles for ashes garbage and swill.

SEC. 92. It shall be the duty of every owner, tenant, lessee, and occupant of every building in the built-up portion of the city of Yonkers forthwith to provide and at all times thereafter to keep clean and cause to be provided and kept suitable and sufficient boxes, barrels, cans, vessels, or tubs with air-tight covers for receiving and holding, without leakage, and without being filled within 4 inches of the top thereof, all the ashes, rubbish, garbage, and liquid substances of whatever kind that may accumulate during the period of three days from said building, or the portion thereof of which such person may be the owner, tenant, lessee, or occupant. A separate vessel shall be provided for ashes and rubbish, and another for garbage and liquid substances; ashes or garbage shall not be placed or kept in the the same vessel with garbage and liquid substances. All ashes, rubbish, garbage, and liquid substances that should be removed from said building shall be placed in the proper receptacles, and no such box, barrel, can, vessel, or tub shall remain on any sidewalk or in any public place longer than may be needed for the removal of the contents thereof. All such cans, vessels, barrels, tubs, boxes, etc., must be kept tightly covered at all times.

SEC. 93. Every receptacle for garbage or ashes shall be placed and kept in such a position (unless kept within or upon private grounds) as the health bureau or the common council shall provide, or the health officer or the police direct; and no person not for that purpose authorized shall interfere therewith, or with the contents thereof.

Contents of privies, etc.—How removed.

SEC. 94. No part of the contents of every privy, vault, sink, or cesspool, and no offal swill, garbage, offensive fluid, liquid or semi-liquid substance or material within the limits of the city of Yonkers shall be removed, nor shall the same be transported through any of the streets or avenues of said city, unless and except the same shall be removed and transported by means of an air-tight apparatus, or in such manner as shall prevent entirely the escape of any noxious or offensive odors therefrom and with a permit from the health bureau.

Scavengers.

SEC. 95. No person shall engage in the business of a scavenger, or of transporting swill, offal, garbage, or any other offensive or noxious substance, or in driving any cart or vehicle for that purpose in the city of Yonkers (except the persons acting under the direction of the common council, the commissioner of public safety, or the commissioner of public works) until he shall have first received a permit from the health officer in each instance.

SEC. 96. Every scavenger or other person receiving a permit to empty, clean, or disinfect any privy, vault, sink, or cesspool, shall complete such work within 48 hours after receiving such permit, and shall immediately report the same to the health bureau, which shall ascertain whether such work has been properly performed. No scavenger shall be entitled to receive compensation for such services until his verified account therefor shall have been approved and certified by the health officer.

SEC. 97. No person having charge of any cart or other vehicle for carrying any offal, swill, garbage, rubbish, or the contants of any privy, vault, sink, or cesspool, having on it or in it any of said substances or anything nauseous or offensive shall unnecessarily permit the same to stand or remain, nor shall a needless number of persons gather before or near any building, place of business, or other premises in or upon which such articles are being used; nor shall the person or persons in charge or control of said cart or vehicle permit an unreasonable length of time to be occupied in loading or unloading the same or in passing along any street or through any inhabited place or ground; nor shall any such cart or vehicle, or the driver thereof or anything thereto appertaining be, or by any person having a right to control the same, allowed to be in a condition needlessly filthy or offensive.

SEC. 98. All carts or vehicles in the last section mentioned, and boxes, tubs, and receptacles thereon in which any substance referred to in said section may be or be carried, shall be strong and tight, and the sides shall be so high above the load or contents that no part of such contents or load shall fall, leak, or spill therefrom; and when, in the opinion of the board of health, it is necessary to prevent the contents of such carts or vehicles, tubs, boxes, or receptacles from being offensive, each of said carts or receptacles, tubs, boxes, and receptacles shall be adequately and tightly covered, as the orders or regulations of the board may provide or direct.

SEC. 99. No driver of any such cart or vehicle, or any person having undertaken or being engaged about the loading or unloading thereof, or person having undertaken to empty or remove any manure, garbage, offal, or the contents of any vault, sink, privy, cesspool, or any noxious or offensive substances, shall do or permit to be done about the same or in connection therewith that which shall be needlessly offensive or filthy in respect to any person, street, place, building, or premises.

SEC. 100. No person owning or having in charge in the city of Yonkers any cart or other vehicle for carrying the contents of any privy, vault, cesspool, or sink, or offal, swill, or garbage, shall keep or cause or allow to be kept any such cart or vehicle within 50 feet of any dwelling house, without a permit having been first obtained from the health bureau; and all persons owning or having in charge any such carts or vehicles shall be required to thoroughly cleanse each day every such cart or vehicle, and to keep the same in good sanitary condition.

Contents of privies, etc., to be disinfected.

SEC. 101. All putrid and offensive matter, and all night soil, and the contents of sinks, privies, vaults, and cesspools, and all noxious substances in the built-up portion of the city of Yonkers shall, before their removal or exposure, be disinfected and rendered inoffensive by the owner, lessee, or occupant of the premises where the same is being done, by the person who removes or is about to remove the same; and for all such matter disinfected and rendered inoffensive, the person (not being such owner, lessee, or occupant) who shall so disinfect and remove the same, shall be entitled to demand and receive compensation, to be fixed by the commissioner of public safety, not exceeding 12 cents per cubic foot for making such disinfection and removal, to be paid by such owner, tenant, or occupant. This section shall not apply to garbage placed in proper receptacles for removal according to other sections of this code.

Removal of offal by boats.

SEC. 102. No person shall take or allow any ship, boat, scow, or other vessel to come into or lay to, at or within any dock, pier, or slip in the city of Yonkers for the purpose of the shipment or removal of any offal, garbage, rubbish, or offensive animal or vegetable matter, dirt, or dead animals, or place upon any dock, pier, or slip for shipment or removal any of such substances, without a permit from the board of health.

Health officer to enforce these provisions of code.

SEC. 103. The health officer shall enforce the provisions of the sanitary code in regard to the removal of offal, swill, garbage, or other offensive material, and shall cause the arrest of any and all persons who shall remove or attempt to remove through the streets of this city any offal, swill, garbage, or other offensive material in violation of any of the sections of this sanitary code.

[Part of ordinance adopted Dec. 26, 1911.]

PLAGUE-PREVENTION WORK.

DERATIZATION OF CITIES.

Norfolk, Va.

Surg. Wertenbaker reported July 11 that the health commissioner of Norfolk will put on duty six official rat catchers, and that a bounty of 5 cents is being given for each rat delivered.

New Orleans, La.

Dr. Oscar Dowling, president of the State board of health, reported July 11 that the work of deratization in New Orleans would be carried on jointly by the Louisiana State Board of Health and the board of health of the city of New Orleans under the direction of Surg. J. H. White, of the Public Health and Marine-Hospital Service.

PLAGUE-INFECTED SQUIRRELS FOUND.

During the week ended June 8, 1912, positive diagnosis was made of 35 plague-infected ground squirrels found in Alameda and Contra Costa Counties, Cal., as follows: Alameda County—May 31, 1 squirrel. Contra Costa County—May 21, 2 squirrels; May 24, 3 squirrels; May 25, 4 squirrels; May 27, 17 squirrels; May 28, 1 squirrel; May 31, 7 squirrels.

During the week ended June 15, 1912, positive diagnosis was made of 38 plague-infected ground squirrels found in Alameda and Contra Costa Counties, Cal., as follows: Alameda County—June 6, 1 squirrel; June 15, 1 squirrel. Contra Costa County—May 25, 2 squirrels; May 31, 4 squirrels; June 1, 1 squirrel; June 5, 6 squirrels; June 6, 7 squirrels; June 7, 5 squirrels; June 8, 4 squirrels; June 10, 4 squirrels; June 11, 1 squirrel; June 12, 2 squirrels.

DISTRIBUTION OF POISON.

In connection with the making and maintenance of a squirrel-free zone around the cities of California on San Francisco Bay, 2,880 acres of land in Alameda County were covered with poison during the week ended June 8, 1912, and 1,925 acres during the week ended June 15.

RECORD OF PLAGUE INFECTION.

Places.	Date of last case of human plague.	Date of last case of rat plague.	Date of last case of squirrel plague.	Total number of rodents found infected since May, 1907.
California:				
Cities—				
San Francisco	Jan. 30, 1908	Oct. 23, 1908	None	398 rats.
Oakland	Aug. 9, 1911	Dec. 1, 1908	do	126 rats.
Berkeley	Aug. 27, 1907	None	do	None.
Los Angeles	Aug. 11, 1908	do	Aug. 21, 1908	1 squirrel.
Counties—				
Alameda (exclusive of Oakland and Berkeley).	Sept. 26, 1909	Wood rat, Oct. 17, 1909.	June 15, 1912	220 squirrels and 1 wood rat.
Contra Costa	July 21, 1911	None	June 12, 1912	492 squirrels.
Fresno	None	do	Oct. 27, 1911	1 squirrel.
Merced	do	do	July 13, 1911	5 squirrels.
Monterey	do	do	Aug. 6, 1911	6 squirrels.
San Benito	June 5, 1910	do	June 8, 1911	22 squirrels.
San Joaquin	Sept. 18, 1911	do	Aug. 26, 1911	18 squirrels.
San Luis Obispo	None	do	Jan. 29, 1910	1 squirrel.
Santa Clara	Aug. 23, 1910	do	Oct. 5, 1910	23 squirrels.
Santa Cruz	None	do	May 17, 1910	3 squirrels.
Stanislaus	do	do	June 2, 1911	13 squirrels.
Washington:				
Cities—				
Seattle	Oct. 30, 1907	Sept. 21, 1911	None	25 rats.

RATS COLLECTED AND EXAMINED FOR PLAGUE INFECTION.

WEEK ENDED JUNE 8, 1912.

Places.	Found dead.	Total collected.	Examined.	Found infected.
California:				
Cities—				
Berkeley	13	[1] 186	107	.....
Oakland	30	[2] 759	444	.....
San Francisco	10	[3] 1,570	887	.....
Washington:				
City—				
Seattle	.....	898	848	.....

[1] Identified: Mus norvegicus, 155, Mus musculus, 31.
[2] Identified: Mus norvegicus, 681; Mus musculus, 78.
[3] Identified: Mus norvegicus, 941; Mus rattus, 217; Mus musculus, 211; Mus alexandrinus, 201.

WEEK ENDED JUNE 15, 1912.

Places.	Found dead.	Total collected.	Examined.	Found infected.
California:				
Cities—				
Berkeley	2	[1] 200	130	.....
Oakland	43	[2] 780	520	.....
San Francisco	8	[3] 1,667	1,413	.....
Washington:				
City—				
Seattle	.....	908	867	.....

[1] Identified: Mus norvegicus, 158; Mus musculus, 42.
[2] Identified: Mus norvegicus, 683; Mus musculus, 97.
[3] Identified: Mus norvegicus, 988; Mus rattus, 236; Mus musculus, 246; Mus alexandrinus, 197.

SQUIRRELS COLLECTED AND EXAMINED FOR PLAGUE INFECTION.

During the week ended June 8, 1912, 201 ground squirrels collected in Alameda County and 2,046 collected in Contra Costa County, Cal., were examined for plague infection. One from Alameda County and 34 from Contra Costa County were found to be plague infected.

During the week ended June 15, 1912, 156 ground squirrels collected in Alameda County and 1,987 collected in Contra Costa County, Cal., were examined for plague infection. Two from Alameda County and 36 from Contra Costa County were found to be plague infected.

CEREBROSPINAL MENINGITIS.

CASES AND DEATHS REPORTED BY CITY HEALTH AUTHORITIES FOR THE WEEK ENDED JUNE 29, 1912.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Baltimore, Md.	.....	1	Kansas City, Kans.	1	.....
Boston, Mass.	.....	1	Lawrence, Mass.	1	.....
Bridgeport, Conn.	.....	1	Lowell, Mass.	2	1
Brockton, Mass.	1	1	Lynchburg, Va.	.....	1
Cleveland, Ohio.	1	1	Nashville, Tenn.	1	.....
Fort Wayne, Ind.	1	2	New York, N. Y.	7	4
Haverhill, Mass.	1	1	Omaha, Nebr.	1	2
Houston, Tex.	.....	1	St. Louis, Mo.	1	1

ERYSIPELAS.

CASES AND DEATHS REPORTED BY CITY HEALTH AUTHORITIES FOR THE WEEK ENDED JUNE 29, 1912.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Boston, Mass.	.....	1	Mount Vernon, N. Y.	1	.....
Buffalo, N. Y.	1	.....	Newark, N. J.	.....	1
Cambridge, Ohio.	1	.....	New York, N. Y.	19	2
Cincinnati, Ohio.	2	.....	Philadelphia, Pa.	4	3
Cleveland, Ohio.	3	.....	Pittsburgh, Pa.	6	.....
Evansville, Ind.	.....	1	St. Louis, Mo.	2	.....
Kalamazoo, Mich.	1	.....	San Francisco, Cal.	2	.....
Los Angeles, Cal.	1	.....	Taunton, Mass.	.....	1
Milwaukee, Wis.	3	.....			

LEPROSY.

During the week ended June 29, 1912, 1 case of leprosy was reported at New Bedford, Mass., and 1 at New York, N. Y.

PELLAGRA.

During the week ended June 29, 1912, pellagra was reported as follows: Houston, Tex., 1 death; Los Angeles, Cal., 1 death; Montgomery, Ala., 2 deaths; Providence, R. I., 1 death; Richmond, Va., 1 death.

PNEUMONIA.

CASES AND DEATHS REPORTED BY CITY HEALTH AUTHORITIES FOR THE WEEK ENDED JUNE 29, 1912.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Alameda, Cal.	1		Newark, N. J.		7
Aurora, Ill.		1	New Bedford, Mass.		2
Baltimore, Md.		4	New Orleans, La.		2
Boston, Mass.		11	New York, N. Y.		62
Bridgeport, Conn.		3	Northampton, Mass.		2
Butte, Mont.		5	Oakland, Cal.		3
Cambridge, Mass.		1	Omaha, Nebr.		2
Chelsea, Mass.		1	Pasadena, Cal.		2
Chicago, Ill.	15	51	Passaic, N. J.		1
Chicopee, Mass.		1	Pawtucket, R. I.		1
Cleveland, Ohio.	12	3	Philadelphia, Pa.	10	26
Danville, Ill.		1	Pittsburgh, Pa.	14	16
Dayton, Ohio.		1	Pittsfield, Mass.		2
Duluth, Minn.	1	1	Plainfield, N. J.		2
Elizabeth, N. J.		2	Providence, R. I.		3
Elmira, N. Y.		1	Richmond, Va.		2
El Paso, Tex.		1	Rockford, Ill.		3
Evansville, Ind.		1	San Antonio, Tex.		1
Grand Rapids, Mich.		1	San Diego, Cal.	1	1
Harrisburg, Pa.		1	San Francisco, Cal.	2	
Kalamazoo, Mich.	4	4	Saratoga Springs, N. Y.		1
La Crosse, Wis.		1	Schenectady, N. Y.	2	2
Lexington, Ky.		1	Seattle, Wash.		1
Los Angeles, Cal.		9	South Bethlehem, Pa.	1	
Lowell, Mass.		3	Springfield, Ill.		1
Lynchburg, Va.		1	Springfield, Mass.		4
Lynn, Mass.		1	Waltham, Mass.		1
Manchester, N. H.	1	1	Washington, D. C.		5
Marinette, Wis.		1	Wilkinsburg, Pa.		2
McKeesport, Pa.	1		Williamsport, Pa.		5
Montclair, N. J.		1	Wilmington, Del.		1
Montgomery, Ala.		2	Yonkers, N. Y.		3
Mount Vernon, N. Y.	2				

POLIOMYELITIS.

CASES AND DEATHS REPORTED BY CITY HEALTH AUTHORITIES FOR THE WEEK ENDED JUNE 29, 1912.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Buffalo, N. Y.	3		Mount Vernon, N. Y.	1	
Cincinnati, Ohio.		1	New York, N. Y.	7	
Cleveland, Ohio.	1		Philadelphia, Pa.	1	
Concord, N. H.	1		Providence, R. I.	1	
Dayton, Ohio.		1	Reading, Pa.	1	
Los Angeles, Cal.	12	1			

Los Angeles, Cal.

Surg. S. D. Brooks reports July 12 a recent increase in the number of cases of poliomyelitis occurring in Los Angeles, as indicated by the following data furnished by the commissioner of health, Dr. L. M. Powers:

Poliomyelitis occurred in Los Angeles from October, 1911, to date, as follows:

October, 1911.....1 fatal case.
November, 1911.....1 case.
March, 1912.....1 fatal case.
June, 1912.....19 cases with 4 deaths.
July 1 to 7, 1912.....39 cases with 4 deaths.

Of these 61 cases, 5 were under 1 year of age; 34 were between 1 and 5 years of age; 11 were between 6 and 10 years of age; 3 between 11 and 15 years of age; 1 was 16 years of age, and 1 was 50 years of age. The ages of 3 were not recorded.

RABIES.

During the week ended June 29, 1912, rabies was reported as follows: Chicago, Ill., 1 death; Mount Vernon, N. Y., 1 case; New York, N. Y., 1 case.

TETANUS.

CASES AND DEATHS REPORTED BY CITY HEALTH AUTHORITIES FOR THE WEEK ENDED JUNE 29, 1912.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Auburn, N. Y.	1	1	Lawrence, Mass.	.....	1
Baltimore, Md.	.....	1	Milwaukee, Wis.	1	1
Chicago, Ill.	.....	1			

SMALLPOX IN THE UNITED STATES.

STATE REPORTS.

This table is compiled from reports made to the Bureau of the Public Health and Marine-Hospital Service by the health authorities of certain States, and shows the number of cases of smallpox notified to the authorities in these States.

The following States report monthly: Arizona, California, Colorado, Connecticut, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Mississippi, Montana, New Jersey, New York, North Carolina, North Dakota, Oklahoma, Ohio, Oregon, Pennsylvania, South Dakota, Texas, Utah, Vermont, Virginia, Washington, Wisconsin, and Wyoming.

Florida, Minnesota, and the District of Columbia report by weeks.

Reports Received During Week Ended July 19, 1912.

Places.	Date.	Cases.	Deaths.	Remarks.
Colorado:				
Counties—				
Archuleta	June 1-30	3	.....	
Denver	do	8	.....	
Fremont	do	1	.....	
Mesa	do	1	.....	
Moffat	do	1	.....	
Montrose	do	3	.....	
Weld	do	11	.....	
Total for State		28	.....	
Connecticut:				
Counties—				
New Haven	June 1-30	9	.....	
Tolland	do	1	.....	
Windham	do	27	.....	
Total for State		37	.....	

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received During Week Ended July 19, 1912.

Places.	Date.	Cases.	Deaths.	Remarks.
Iowa:				
Counties—				
Buena Vista	June 1-30	1		
Butler	do	1		
Cherokee	do	24		
Howard	do	3		
Jasper	do	1		
Linn	do	4		
Pottawattamie	do	4		
Sac	do	2		
Story	do	1		
Wright	do	1		
Total for State		42		
Maine:				
Counties—				
Androscoggin	June 1-30	6		
Aroostook	do	9		
Kennebec	do	55		
Lincoln	do	3		
Oxford	do	5		
Sagadahoc	do	3		
Somerset	do	5		
York	do	2		
Township 17, R. 4	do	5		
Total for State		93		
Maryland, exclusive of Baltimore.	June 1-30			No case.
Massachusetts:				
Counties—				
Bristol	June 1-30	2		
Essex	do	5		
Franklin	do	16		
Hampden	do	1		
Total for State		24		
North Dakota:				
Counties—				
Barnes	June 1-30	3		
Bottineau	do	12		
Burleigh	do	13		
Case	do	2		
Foster	do	1		
Grand Forks	do	3		
Oliver	do	2		
Total for State		36		
New Jersey:				
County—				
Warren	June 1-30	1		
Vermont:				
County—				
Lamoille	June 1-30	6		
Virginia:				
Counties—				
Brunswick	June 1-30	12		
Chesterfield	do	1		
Grayson	do	3		
Hanover	do	3		
Henrico	do	14	1	
Lancaster	do	2		
Lee	do	1		
Norfolk	do	13		
Mecklenburg	do	14		
Russell	do	9		
Total for State		72	1	

SMALLPOX IN THE UNITED STATES—Continued.

Reports Received During Week Ended July 19, 1912.

Places.	Date.	Cases.	Deaths.	Remarks.
Washington:				
Counties—				
Chelan	May 1-31	10		
Douglas	do	2		
Ferry	do	1		
King	do	13		
Kittitas	do	3		
Klickitat	do	2		
Mason	do	15		
Pierce	do	13		
Pend Oreille	do	1		
Snohomish	do	14		
Spokane	do	33		
Stevens	do	3		
Thurston	do	1		
Whatcom	do	1		
Whitman	do	15		
Yakima	do	6		
Total for State		133		
Grand total		472	1	

CITY REPORTS.

Cases and Deaths Reported by City Health Authorities for the Week Ended June 29, 1912.

City.	Cases.	Deaths.	City.	Cases.	Deaths.
Chicago, Ill	2		Los Angeles, Cal	1	
Cincinnati, Ohio	1		Milwaukee, Wis	3	
Danville, Ill	1		New Bedford, Mass	1	
Detroit, Mich	4		New Orleans, La	3	
El Paso, Tex	6		Philadelphia, Pa	6	
Evansville, Ind	1		Pittsburgh, Pa	1	
Harrisburg, Pa	2		Richmond, Va	7	
Kalamazoo, Mich	1		St. Louis, Mo	1	
Kansas City, Kans	1		San Antonio, Tex	2	
Knoxville, Tenn	5		San Francisco, Cal	3	
La Crosse, Wis	1		Spokane, Wash	5	
Logansport, Ind	1		Wilkes-Barre, Pa	1	

MORBIDITY AND MORTALITY.

MORBIDITY AND MORTALITY TABLE, CITIES OF THE UNITED STATES, FOR WEEK ENDED JUNE 29, 1912.

Cities.	Population, United States census 1910.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.		Typhoid fever.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cities having over 500,000 inhabitants.												
Baltimore, Md	558,485	174	10	....	7	....	14	....	57	31	17	1
Boston, Mass	670,585	165	16	1	127	3	17	....	58	28	10	1
Chicago, Ill	2,185,283	563	141	23	246	3	182	7	154	74	15	2
Cleveland, Ohio	560,663	135	31	3	48	3	33	2	29	10	1	....
New York, N. Y	4,766,883	1,233	278	19	815	17	250	16	470	135	51	9
Philadelphia, Pa	1,549,008	423	48	2	22	1	45	2	111	60	36	8
Pittsburgh, Pa	533,905	156	19	3	214	11	32	....	31	21	8	2
St. Louis, Mo	687,029	204	22	1	10	....	14	2	50	19	4	1
Cities having from 300,000 to 500,000 inhabitants.												
Buffalo, N. Y	423,715	129	11	....	305	7	9	1	24	11	9	2
Cincinnati, Ohio	364,463	106	8	1	15	....	16	1	38	13	3	1
Detroit, Mich	465,766	136	13	3	....	....	22	....	....	....	....	....
Los Angeles, Cal	319,198	98	11	....	6	....	6	....	31	13	10	2
Milwaukee, Wis	373,857	....	14	2	74	2	16	....	12	7	13	....
Newark, N. J	347,469	91	19	1	13	....	12	....	31	15	3	1
New Orleans, La	339,075	....	4	....	11	....	1	....	33	15	8	3
San Francisco, Cal	416,912	129	3	....	1	....	1	....	21	11	6	2
Washington, D. C	331,069	110	7	1	42	....	2	....	23	14	3	....
Cities having from 200,000 to 300,000 inhabitants.												
Providence, R. I	224,326	83	9	....	5	1	16	1	6	12	1	1
Seattle, Wash	237,194	47	2	....	3	....	3	....	10	5	1	....
Cities having from 100,000 to 200,000 inhabitants.												
Bridgeport, Conn	102,054	29	....	....	2	....	8	....	2	1	....	....
Cambridge, Mass	104,839	22	4	....	10	....	2	....	3	3	3	....
Columbus, Ohio	181,548	50	5	....	20	1	10	....	2	7	....	....
Dayton, Ohio	116,577	36	5	1	33	2	....	....	....	1	....	....
Fall River, Mass	119,295	27	1	1	1	....	2	....	3	3	....	....
Grand Rapids, Mich	112,571	22	1	....	....	....	2	....	4	....	6	....
Lowell, Mass	106,294	36	2	1	45	1	....	....	2	1	....	....
Nashville, Tenn	110,364	33	....	....	....	....	....	....	3	3	1	....
Oakland, Cal	150,174	50	1	1	3	....	....	....	3	4	1	2
Omaha, Nebr	124,096	31	....	....	1	....	2	....	1	2	4	....
Richmond, Va	127,628	41	2	....	1	....	1	....	4	3	9	1
Spokane, Wash	104,402	....	1	....	11	....	....	....	....	....	2	....
Toledo, Ohio	168,497	41	2	....	69	2	....	....	....	7	8	....
Worcester, Mass	145,986	37	3	....	10	....	5	....	7	2	....	....
Cities having from 50,000 to 100,000 inhabitants.												
Altoona, Pa	52,127	5	....	....	....	....	1	....	1	1	....	....
Bayonne, N. J	55,545	....	2	....	14	....	9	....	1	....	....	....
Brockton, Mass	56,878	10	....	....	5	....	2	....	....	....	1	....
Camden, N. J	94,538	....	6	....	2	....	....	....	6	....	1	....
Duluth, Minn	78,466	19	....	....	4	....	....	....	2	2	1	1
Elizabeth, N. J	73,409	21	1	....	3	1	5	....	1	2	....	....
Evansville, Ind	69,647	13	....	....	....	....	....	....	....	....	....	....
Fort Wayne, Ind	63,933	18	2	....	2	....	1	....	....	2	....	....
Harrisburg, Pa	64,186	13	2	....	3	....	....	....	6	....	....	....
Houston, Tex	78,800	19	....	....	....	....	....	....	....	2	....	1
Johnstown, Pa	55,482	19	....	....	8	....	5	....	....	2	....	....
Kansas City, Kans	82,331	....	....	....	....	....	....	....	1	....	1	....
Lawrence, Mass	85,892	22	....	....	9	2	....	....	6	1	1	....
Lynn, Mass	89,336	12	2	....	13	....	....	....	....	....	1	....
Manchester, N. H	70,063	21	2	1	9	....	....	....	2	2	....	....
New Bedford, Mass	96,652	23	1	3	6	....	1	....	9	1	....	....
Passaic, N. J	54,773	16	3	....	9	....	2	....	....	1	....	....
Pawtucket, R. I	51,622	....	....	1	....	....	....	....	....	2	....	1
Reading, Pa	96,071	29	5	2	23	....	4	....	1	4	4	1

MORBIDITY AND MORTALITY—Continued.

Morbidity and mortality table, cities of the United States, for week ended June 29, 1912—Continued.

Cities.	Population, United States census 1910.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.		Typhoid fever.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
***Cities having from 50,000 to 100,000 inhabitants*—Continued.**												
Saginaw, Mich.	50,510	14	1	....	1	....	2	....	.....	1	....	....
San Antonio, Tex.	96,614	60	2	....	.....	....	4	....	.....	9	9	....
Schenectady, N. Y.	72,826	13	.....	....	28	....	4	....	3	2	....	....
South Bend, Ind.	53,684	10	.....	....	.....	....	1	....	.....	3	....	....
Springfield, Ill.	51,678	11	.....	....	.....	....	.....	....	.....	.....	....	....
Springfield, Mass.	88,926	29	2	1	1	....	2	....	3	1	....	....
Trenton, N. J.	96,815	33	5	....	7	1	3	....	8	4	3	....
Wilkes-Barre, Pa.	67,105	.....	4	....	4	....	1	....	2	....	1	....
Wilmington, Del.	87,411	30	.....	....	.....	....	.....	....	.....	2	....	....
Yonkers, N. Y.	79,803	20	5	....	1	....	2	....	3	2	1	....
Cities having from 25,000 to 50,000 inhabitants.												
Atlantic City, N. J.	46,150	16	2	1	1	....	1	....	.....	....	....	....
Auburn, N. Y.	34,668	7	.....	....	2	....	.....	....	.....	.....	....	....
Aurora, Ill.	29,807	10	.....	....	.....	....	.....	....	.....	.....	....	1
Binghamton, N. Y.	48,443	16	.....	....	.....	....	.....	....	2	3	....	....
Brookline, Mass.	27,792	7	.....	....	5	....	1	....	1	1	....	....
Butte, Mont.	39,165	22	.....	....	.....	....	.....	1	.....	5	....	....
Chelsea, Mass.	32,452	13	.....	....	6	....	.....	....	2	1	....	....
Chicopee, Mass.	25,401	6	.....	....	9	....	.....	....	.....	1	....	....
Danville, Ill.	27,871	14	1	....	1	....	.....	....	.....	1	....	....
Davenport, Iowa.	43,028	10	1	....	.....	....	9	....	.....	.....	....	....
East Orange, N. J.	34,371	.....	1	....	21	....	2	....	.....	.....	....	....
Elmira, N. Y.	37,176	11	1	....	45	1	.....	....	.....	.....	....	....
El Paso, Tex.	39,279	23	.....	....	.....	....	2	....	.....	1	1	1
Everett, Mass.	33,484	.....	.....	....	21	1	.....	....	2	....	....	....
Fitchburg, Mass.	37,826	7	.....	....	.....	....	.....	....	.....	.....	....	....
Haverhill, Mass.	44,115	6	.....	....	19	....	2	....	.....	.....	2	....
Kalamazoo, Mich.	39,437	18	.....	....	.....	....	1	....	1	1	....	....
Knoxville, Tenn.	36,346	8	.....	....	.....	....	.....	....	.....	2	....	1
La Crosse, Wis.	30,417	5	2	....	.....	....	1	....	.....	.....	....	....
Lancaster, Pa.	47,227	.....	1	....	5	....	1	....	.....	.....	1	....
Lexington, Ky.	35,099	10	.....	....	1	....	.....	....	.....	.....	....	....
Lima, Ohio.	30,508	6	1	....	1	....	1	....	.....	1	....	....
Lynchburg, Va.	29,494	10	.....	....	5	....	1	....	.....	2	1	1
Malden, Mass.	44,404	11	1	....	38	....	1	....	2	1	1	....
McKeesport, Pa.	42,694	13	1	....	.....	....	1	....	.....	1	.....	....
Montgomery, Ala.	38,136	19	.....	....	.....	....	1	....	.....	.....	.....	....
Mount Vernon, N. Y.	30,919	.....	5	....	14	....	.....	....	1	....	1	....
Newport, Ky.	30,309	4	.....	....	.....	....	2	....	.....	.....	....	....
Newton, Mass.	39,806	11	.....	....	17	....	.....	....	3	1	....	....
Niagara Falls, N. Y.	30,445	7	3	....	1	....	1	....	2	1	....	....
Norristown, Pa.	27,875	12	1	....	.....	....	.....	....	.....	.....	....	1
Orange, N. J.	29,630	.....	.....	....	5	....	.....	....	2	.....	....	....
Pasadena, Cal.	30,291	16	.....	....	.....	....	.....	....	2	2	....	....
Pittsfield, Mass.	32,121	5	.....	....	3	....	1	....	.....	.....	....	....
Portsmouth, Va.	33,190	10	.....	....	.....	....	1	....	.....	.....	....	....
Racine, Wis.	38,002	17	1	....	.....	....	.....	....	.....	.....	....	....
Roanoke, Va.	34,874	8	.....	....	3	....	.....	....	1	1	2	....
Rockford, Ill.	45,401	26	.....	....	.....	....	2	....	.....	5	24	2
Salem, Mass.	43,697	14	1	....	1	....	.....	....	.....	.....	1	....
San Diego, Cal.	39,578	.....	.....	....	1	....	.....	....	1	1	....	....
South Omaha, Nebr.	26,259	7	.....	....	.....	....	.....	....	.....	.....	....	....
Superior, Wis.	40,384	2	.....	....	.....	....	.....	....	.....	.....	....	....
Taunton, Mass.	34,259	11	.....	....	3	....	.....	....	4	2	....	....
Waltham, Mass.	27,834	8	2	....	1	....	2	....	2	.....	....	....
West Hoboken, N. J.	35,403	.....	.....	....	4	....	3	....	1	.....	....	....
Wheeling, W. Va.	41,641	13	2	....	6	....	1	....	.....	1	2	....
Williamsport, Pa.	31,860	.....	.....	....	15	....	.....	....	.....	.....	.....	....
Wilmington, N. C.	25,748	10	.....	....	.....	....	1	....	1	1	5	....
York, Pa.	44,750	.....	.....	....	16	....	.....	....	.....	.....	.....	....
Zanesville, Ohio.	28,026	6	.....	....	.....	....	.....	....	.....	.....	.....	....

MORBIDITY AND MORTALITY—Continued.

Morbidity and mortality table, cities of the United States, for week ended June 29, 1912—Continued.

Cities.	Population, United States census 1910.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.		Typhoid fever.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cities having less than 25,000 inhabitants.												
Alameda, Cal.	23,833	9	.....	7	.....	.....	.....	.....	1	.....	2	1
Ann Arbor, Mich.	14,817	5	.....	.....	8	.....	.....	.....	.....	.....	.....	.....
Bennington, Vt.	.....	4	2	.....	46	.....	.....	.....	.....	.....	1	2
Braddock, Pa.	17,759	9	1	.....	4	.....	.....	.....	1	.....	.....	.....
Cambridge, Ohio.	11,327	3	.....	.....	4	.....	.....	.....	.....	.....	.....	.....
Camden, S. C.	.....	.....	1	.....	.....	.....	1	.....	.....	.....	2	.....
Carbondale, Pa.	17,040	.....	.....	.....	1	.....	.....	.....	1	.....	.....	.....
Clinton, Mass.	13,075	3	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
Columbus, Ga.	20,554	6	.....	.....	.....	.....	.....	.....	.....	1	.....	1
Columbus, Ind.	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Concord, N. H.	21,497	8	1	.....	33	.....	.....	.....	.....	1	.....	.....
Cumberland, Md.	21,839	4	.....	.....	14	.....	1	.....	.....	.....	4	.....
Dunkirk, N. Y.	.....	5	.....	.....	1	.....	.....	.....	1	1	1	.....
Galesburg, Ill.	22,089	4	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Gloucester, Mass.	24,398	6	.....	.....	.....	.....	.....	.....	.....	2	.....	.....
Harrison, N. J.	14,498	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Kearny, N. J.	18,659	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Logansport, Ind.	19,050	8	.....	.....	.....	.....	1	.....	.....	1	1	.....
Marinette, Wis.	14,610	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Marlboro, Mass.	14,579	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....
Massillon, Ohio.	13,879	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Medford, Mass.	23,150	.....	1	.....	40	.....	1	.....	2	.....	.....	.....
Melrose, Mass.	15,715	5	2	.....	4	.....	1	.....	.....	.....	.....	.....
Moline, Ill.	24,199	5	.....	.....	.....	.....	.....	.....	.....	.....	1	1
Montclair, N. J.	21,150	3	.....	.....	3	.....	1	.....	.....	1	.....	.....
Morristown, N. J.	12,507	4	.....	.....	6	.....	.....	.....	.....	1	.....	.....
Nanticoke, Pa.	18,857	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newburyport, Mass.	19,240	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
North Adams, Mass.	22,019	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Northampton, Mass.	19,431	7	2	1	3	1	1	.....	1	2	.....	.....
Ottumwa, Iowa.	22,012	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Plainfield, N. J.	22,550	5	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Saratoga Springs, N. Y.	.....	5	2	.....	.....	.....	.....	.....	.....	.....	.....	.....
South Bethlehem, Pa.	.....	5	3	.....	3	.....	.....	.....	.....	.....	.....	.....
Steelton, Pa.	14,246	2	.....	.....	4	.....	.....	.....	2	.....	.....	.....
Warren, Pa.	11,080	4	.....	.....	10	.....	.....	.....	.....	.....	.....	.....
Wilkinsburg, Pa.	18,924	5	.....	.....	.....	.....	1	1	2	.....	.....	.....
Woburn, Mass.	15,308	5	.....	.....	1	.....	1	.....	1	.....	.....	.....

STATISTICAL REPORTS OF MORBIDITY AND MORTALITY, STATES OF THE UNITED STATES (Untabulated).

KANSAS.—Month of May, 1912. Population 1,690,949. Total number of deaths from all causes 1,531, including diphtheria 2, measles 4, typhoid fever 1. Cases reported: Diphtheria 30, measles 663, scarlet fever 90, smallpox 24, typhoid fever 23.

MICHIGAN.—Month of June, 1912. Population, 2,810,173. Cases of communicable diseases reported: Diphtheria 142, measles 343, scarlet fever 202, smallpox 60, tuberculosis 183, typhoid fever 151.

FOREIGN AND INSULAR.

CHILE.

Tocopilla—Nitrate District of Toco—Yellow Fever.

The American consul at Valparaiso reports for the first half of the month of May, 1912, 237 cases of yellow fever, with 85 deaths, at Tocopilla; also 62 cases, with 17 deaths, in the Nitrate District of Toco.

CHINA.

Dairen (Dalny)—Quarantine Precautions against Plague.

Consul Pontius transmits a translation of a notification by the chief of the local marine bureau (Dairen) concerning the disinfection of rat-infested cargo or personal baggage shipped from Shanghai, Amoy, or Hongkong to Dairen, as follows:

DAIREN, (Dalny), *June 3, 1912.*

To the AMERICAN CONSULATE, *Dairen*,
From the CHIEF OF MARINE BUREAU.

You are informed that with reference to the notification issued on September 8, 1911, concerning the destruction of rats in cargo and personal baggage, shipped to this place from the ports of Shanghai or Amoy, the wording of same is now altered so as to include the port of Hongkong as well. The said altered notification will, consequently, take effect on and after this day, the altered wording of same being as follows:

"For the time being, any cargo or personal baggage packed in boxes, baskets, matting, cloth or bags, shipped in a vessel which left or touched the ports of Shanghai, Amoy, or Hongkong, showing any evidence of rats being therein by the condition of the packing, the landing of said cargo or personal baggage will not be permitted unless the rats have been destroyed in the manner provided.

"The process employed in the killing of rats in either a vessel or lighter as provided for by the chief of marine bureau is as follows:

"In the destruction of rats, carbon dioxide gas shall be used in the vessel or lighter. Should the disinfection take place in the lighter, the costs of discharging the cargo shall be paid by the owner of the cargo or personal baggage."

CUBA.

Havana—Plague Situation.

A fatal case of plague occurred in Havana July 12, in the person of a Spaniard living in the area known to be infected. This is the second case which has occurred in the city. The other case, which was previously reported, is convalescing. Reports received July 14 stated that there were no other cases nor suspicious cases in the city, and that of the many rats caught and examined none had so far been found to be plague infected.

For the purposes of quarantine and the prevention of the spread of plague, that part of the city of Havana known as the old city will be considered to be infected. This includes a broad margin of uninfected territory surrounding the limited area of four blocks known to be infected. Deratization has been begun in this area. Special attention is being given to the deratization of wharves and of the section known to be infected.

HAWAII.

Examination of Rodents for Plague Infection.

During the week ended June 8, 1912, 707 rats and mongooses were examined at Hilo and 1,480 at Honokaa. No plague infection was found.

The last case of human plague occurred at Honokaa March 15, 1912. The last plague-infected rat was found between Honokaa and Kapulena April 24, 1912.

INDIA.

Calcutta—Cholera and Plague.

Acting Asst. Surg. Allan reports cholera and plague as follows:

During the week ended May 11, 1912, 44 deaths from cholera and 77 from plague were reported at Calcutta; in all Bengal there were 921 cases of plague with 841 deaths; in all India 6,211 cases of plague with 5,244 deaths.

During the week ended May 18, 1912, 45 deaths from cholera and 53 from plague were reported at Calcutta; in all Bengal 581 cases of plague with 502 deaths; in all India 4,157 cases of plague with 3,415 deaths.

ITALY.

Examination of Emigrants.

Surg. Geddings, at Naples, reports:

Vessels inspected at Naples, Messina, and Palermo, week ended June 22, 1912.

NAPLES.

Date.	Name of ship.	Destination.	Steerage passengers inspected and passed.	Pieces of baggage inspected and passed.	Pieces of baggage disinfected.
June 19	Moltke	New York	513	85	870
20	Italia	do	218	50	320
	Total		731	135	1,190

MESSINA.

June 17	Italia	New York			

PALERMO.

June 15	Friedrich der Grosse	New York	380	300	180
17	Oceania	do			
17	Themistocles	do			
18	Martha Washington	do			
20	Italia	do			
21	Italia	do	219	200	150
	Total		599	500	330

JAMAICA.

Kingston—Quarantine Against Porto Rico.

Vice Consul Orrett reports June 27 that at a meeting of the central quarantine board, held in Kingston, June 26, to consider the outlook of the plague in Porto Rico, it was decided: (*a*) That no vessel calling at any port in Porto Rico shall be admitted to enter any port in this island; (*b*) all vessels touching at Porto Rico and arriving at any out port will be ordered to the quarantine station at Port Royal, in Kingston Harbor, which has been designated the plague-quarantine ground for the entire island.

There is very little trading between the island of Jamaica and Porto Rico, as only a steamer of the Hamburg-American Line makes connections, via Haiti, once a month. The opportunities of infection, therefore, with reasonable precautions, may be considered remote.

JAVA.

Batavia—Typhus Fever.

Consul Rairden reports the occurrence of 2 cases of typhus fever, with 1 death, during the 2 weeks ended June 25, 1912.

MEXICO.

Mexico City—Smallpox—Typhus Fever.

Consul Shanklin at Mexico City reports for the two weeks ended June 1, 1912, 108 cases of typhus fever, with 18 deaths; also 94 cases of smallpox, with 43 deaths, in Mexico City.

San Juan Bautista—Yellow Fever.

The American consul at Frontera reports July 14: Since telegram of July 7 three new cases of yellow fever officially reported in the capital (San Juan Bautista).

PORTO RICO.

Plague Situation.

On July 11 and 12, no case of plague was reported in Porto Rico. On July 13, 2 cases were reported in the section of San Juan known as Puerto de Tierra. On July 14, 1 fatal case was reported in Dorado, a town about 12 miles from San Juan. This is the first case occurring in Dorado, and active measures were at once instituted to control and eradicate this focus of infection. This makes to July 15, a total for all Porto Rico of 37 cases with 23 deaths.

Passed Asst. Surg. Creel reported by letter July 9 regarding plague in Porto Rico as follows:

The first case of human plague was recognized on June 14, in the person of a Porto Rican who had taken sick June 12. This case terminated fatally June 17. The following is a list of human plague cases occurring to the present time (July 9), with the exception of the two probable cases admitted to hospital on or about June 1 under the diagnosis, "nonvenereal bubo," and of which the histories were strongly indicative of bubonic plague.

Positive cases of plague in man.

Name.	Age.	Date.	Residence.	Diagnosis.	Termination.
J. C	20	June 10	Ranchon Carolina	Clinical	Died June 13.
P. C	20	June 12	do	Bacteriological	Died June 17.
M. L	19	June 15	Stop 6½	do	
L. O	16	June 17	San Agustin 131	do	Do.
A. C	20	June 14	Stop 2½	do	Died June 21.
H. R	20	June 18	do	do	
P. R	15	June 10	Unknown	do	
J. S	27	June 19	Stop 2½	do	Died June 25.
J. A. S	18	June 18	Talleres	do	
M. A	20	June 17	Marina	do	Died June 22.
P. D	32	June 22	Stop 2½	do	
J. C	10	June 23	San Sebastian 21	Clinical	Died June 23.
M. T	28	June 20	Stop 5	Bacteriological	Died June 21.
C. S	38	June 19	Stop 18	do	Do.
A. A	21	June 21	Stop 5½	Clinical	Died June 24.
F. G. L	30	June 20	Stop 43½	do	Died June 22.
P. J	35	June 10	San Andres Street	do	Died June 15.
M. P	24	June 15	Marina	do	Died June 17.
J. L	33		Arsenal 6	do	Died June 21.
F. R	33	June 15	Marina	Bacteriological	
F. C	30	June 22	Stop 3½	do	
J. R	28	June 19	San Agustin 60		
F. N	20	June 23	Stop 3½	Bacteriological	
G. F	11	July 3	Stop 17	do	Died July 4.
C. M	32	July 2	Stop 3½	do	Died July 3.
M. M	45	July 1	Talleres	do	
J. H	26	July 4	Stop 16½	do	
J. O	11	July 6	do	do	
M. S		July 5	San Andres 4	do	
C. M			Carolina	do	Died June 25.
C. C			Goleta Guillermito	do	Died June 22.
D. M			Loiza	do	Died June 28.
G. P	32	July 9	Stop 3	do	

NOTE.—Ranchon Carolina, San Agustin, San Andres, and Stops 1 to 8 are all addresses in the Puerta de Tierra section of San Juan. Marina, San Sebastian Arsenal, are in San Juan. Talleres and Stops 10 to 43½ are addresses in the residential suburb of Santurce. Carolina means the town of Carolina, some 15 miles from the dock. Loiza is the town of Loiza, 3 miles farther.

It is thus seen that to July 9 the department of sanitation officially recorded 33 cases of plague, of which one case occurred in Carolina from infection contracted at that place; one occurred in Loiza, several miles distant from Carolina, in the person of a man who had slept in Carolina three days before the onset of the illness, and in which the infection can properly be charged to Carolina; one fatal case occurred on the schooner *Guillermito* at Arroyo on June 22, in which the infection was without doubt contracted at San Juan. All the other cases occurred within the municipality of San Juan, where the first cases and the primary infection were apparently limited to the section of the city known as Puerto de Tierra. From the section known as Puerto de Tierra the infection apparently spread both in rats and in man to Santurce, a residential suburb within the municipality of San Juan. The infection at Carolina was presumably transmitted there by freight, as the intervening territory, so far as known, is free from both rat and human infection.

The following is a list of rats examined at the laboratory for plague infection, showing the number found infected and the places from which they were collected.

Report of rats examined at the laboratory.

Date.	Found infected.		Negative.	Total.
	Number.	Where found.		
June 23	6	Puerta de Tierra, 5; San Juan, 1	22	28
June 24	9	Puerta de Tierra, 8; La Perla, 1	154	163
June 25	4	Santurce, 2; S. S. Coamo, 2	16	20
June 26			19	19
June 27			16	16
June 28	2	District 29 Puerta Tierra	51	53
June 30	3	Carolina, 1; Carretera, 1; illegible address, 1	17	20
July 1	2	Carolina, 1; Puerta Tierra, 1	14	16
July 2			20	20
July 3			45	45
July 4	4	Carolina, 3; San Juan, 1	77	81
July 5			79	79
July 6	3	Carolina, 3	203	206
July 8	4	....do	182	186
July 9			178	178
Total	37		1,093	1,130

NOTE.—On July 6, 14 out of 18 rats examined at Canovanes were suspicious.

All sanitary work pertaining to plague-suppressive measures was turned over by the department of sanitation of Porto Rico July 8 to Passed Asst. Surg. Creel. Headquarters were immediately established and the necessary organization perfected. Ten inspectors, 4 foremen, and 8 laborers were employed, and this force will be immediately increased to 10 inspectors, 10 foremen, and 40 laborers for field work. The municipality of San Juan has been divided into eight sections and one inspector assigned to each section. One inspector, who is a civil engineer, loaned by the department of sanitation, has been assigned entirely to the supervision of structural changes in the rat-proofing work. One inspector has been detailed to examine all outgoing freight at the warehouses of the American Railroad Co. of Porto Rico, where a building has been constructed for the purpose of fumigating all packages that might contain rodents from San Juan. This inspector will inspect and seal all cars as they are loaded. A foreman has been detailed for similar work at the Porto Rican Express Co. The same procedure is being practiced on all freight leaving San Juan by wagon. These measures will preclude the transportation of infection by rats in merchandise.

The duties of district inspectors consist in the inspection of all buildings and premises and the making of reports of such inspections to the central office. Inspectors are authorized to enforce all rat-proofing measures with the exception of those in which the alterations require a large expenditure of money. Such cases will be attended to by the building inspector or by me. The section of the law under which rat proofing is enforced is as follows:

* * * * * * *

SEC. 31. That in the event of the failure of the owner, agent, or tenant of any property where a public nuisance exists to remove or abate the same within a reasonable time after the proper notification to perform the work has been served, the sanitary authorities are hereby empowered to remove or abate the nuisance at the expense of said owner, agent, or tenant, and the party in interest shall be given due notice of the expenses thereby incurred, and shall reimburse the health authorities therefor. Any sums so paid by the sanitary officials for the removal or abatement of a nuisance shall be a lien upon the property from which removed, or upon which abated, and a

legal claim against the owner, agent, or tenant. This action shall not, however, relieve any such owner, agent, or tenant from liability for the violation of the provisions of the sanitary regulations. The director of sanitation shall file, in the office of the registrar of property of the district in which the property upon which the lien attaches is located, a copy of the notice of expenses incurred in the removal or abatement of a nuisance, as herein provided, together with a description of the property from which the nuisance was removed, or upon which it was abated, which notice, from the time of its filing, as herein provided, shall be notice of the existence of the lien herein created to all persons.

* * * * * * *

SEC. 33. That any person violating any sanitary regulation put in force as herein provided shall be punished by a fine of not less than $1 nor more than $100, or by imprisonment from 1 to 30 days, or with both penalties, at the discretion of the court.

Dr. Creel further reported by letter July 10 that the plague-suppressive measures consist in the eradication of plague infection from San Juan and the prevention of its spread to other points, and that similar work was being conducted at Carolina. On June 25, when plague was first discovered in Carolina, preliminary steps were taken by the department of sanitation toward the rat proofing of all premises, and on July 3 an active campaign was begun, Asst. Surg. Williams being sent there to supervise the work jointly with Dr. Malaret, of the Porto Rico department of sanitation. The killing of rats was begun, and the rat proofing of premises continued. In all houses harboring rats because of the lack of elevation or proper foundation walls, the floors were torn up after a fine mesh wire fence had been erected about the premises to prevent the escape of rats. All rats were then caught and sent to the laboratory for examination. There are in Carolina about 300 houses, many of which are frame structures. These are being elevated. There are some buildings of adobe construction, the walls of which have been found to be rat infested. These will be condemned and torn down. It is expected that within a short period the buildings in Carolina will be rat proofed and the town practically free from rats.

Three thousand additional rat traps are expected to arrive by boat July 11. As soon as these are received the full force of 40 men, in squads of 4, each squad supervised by a foreman, is to be set to work trapping rats in San Juan.

It is contemplated to secure as rapid and thorough rat proofing of the premises within the municipality of San Juan as possible, and to maintain a sufficient force of men as rat catchers who, during the time when not attending to the traps, will distribute rat poison and secure the proper care and complete protection of all materials which may serve as rat food. The department of sanitation will attend to the collection and disposal of garbage, and this office will enforce the maintenance by householders of proper garbage receptacles.

Passed Asst. Surg. Grubbs, chief quarantine officer of Porto Rico, reports, by letter July 9, that at San Juan the two principal piers (Nos. 1 and 2) are semirat proof and have concrete floors and galvanized-iron sheds with doors; that the stone wharves to the west of Pier No. 1 are being pointed up and should be completed within a few days; that to the east of Pier No. 2 are the Government and railroad docks, which are rat infested, and that vessels have been refused permission to go to them. It is intended to have these docks rebuilt. A cargo-free strip 25 feet wide is being maintained from the edge of all wharves used by small coastwise or other vessels. The only freight from San Juan that is likely in anywise to harbor rats

is fruit. This originates out of the city, and on account of its perishable nature its transportation to the vessel is usually expedited as much as possible. If the fruit is brought in from the country and is delivered directly onto a clean rat-proof pier, its shipment will be entirely safe. No freight that could harbor rats originates in San Juan, so that the only probable danger is in the possibility of an occasional rat getting into a broken box or into some package like a box of fruit.

RUSSIA.

Riga—Typhus Fever.

Consul Doty reports 4 cases of typhus fever, with 1 death, at Riga during the month of April, 1912.

SOUTH AFRICA.

Durban, Natal—Plague.

The American consul at Durban reports 1 death from plague on May 28, and 1 case removed to hospital on May 31, 1912, in Durban.

VENEZUELA.

Caracas—A Correction.

In the Public Health Reports of May 17, 1912, page 776, appeared a report of 4 cases of plague in an institution in the city of Caracas. The ministry of foreign affairs for Venezuela advises that there was no such outbreak and that the report was a mistake.

La Guaira—Yellow Fever—Smallpox.

The American consul at La Guaira reports 1 fatal case of yellow fever at Macuto on June 1, and 1 at Maiquetia, June 17. Both the places named are suburbs of La Guaira. The consul reports, also, 1 case of smallpox in La Guaira June 1.

WEST INDIES.

Trinidad—Plague.

The American consul at Trinidad reports 1 case of plague at Trinidad on July 11.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX.

Reports Received During Week Ended July 19, 1912.

[These tables include cases and deaths recorded in reports received by the Surgeon General, Public Health and Marine-Hospital Service, from American consuls through the Department of State and from other sources.]

CHOLERA.

Places.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay	June 2–8	21	21	
Calcutta	Apr. 21–27		87	Received out of date.
Do	May 5–25		116	
Madras	June 2–8	1	1	
Rangoon	Apr. 1–30	25	24	
Straits Settlements	May 19–June 1	2	5	

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received During Week Ended July 19, 1912.

YELLOW FEVER.

Places.	Date.	Cases.	Deaths.	Remarks.
Chile:				
Toco district	May 1–16	62	17	
Tocopilla	do	237	85	
Mexico:				
San Juan Bautista	July 14	3		
Venezuela:				
Macuto	June 1	1	1	
Maiquetia	June 17	1	1	

PLAGUE.

China:				
Chifu	June 2–8			2 deaths on S. S. Cheongshing between Tientsin and Taku.
Hongkong	May 19–June 8	672	542	
Tientsin	June 2–8	1	1	From S. S. Cheongshing from Hongkong.
Cuba:				
Habana	July 12	1	1	
India:				
Bombay	June 2–8	33	26	
Calcutta	Apr. 21–27		119	
Do	May 5–25		166	
Karachi	June 2–8	11	9	
Rangoon	Apr. 1–30	51	46	
Japan:				
Formosa	Apr. 22–June 1	49	33	
Java:				
Passoeroean Residency	May 26–June 1	11	9	
Porto Rico:				
Dorado	July 15	1	1	
San Juan	July 13	2		
Straits Settlements:				
Singapore	May 19–June 1	3	3	
West Indies:				
Trinidad	July 11	1		

SMALLPOX

China:				
Hongkong	May 19–June 8	7	5	
Tientsin	June 2–8		1	
France:				
Nantes	June 17–23	1		
Paris	June 16–22	1		
India:				
Bombay	June 2–8	31	23	
Calcutta	Apr. 21–27		2	
Do	May 5–25		8	
Rangoon	Apr. 1–30	154	57	
Japan:				
Kobe	June 3–16	2		
Java:				
Batavia	May 26–June 1	6	1	
Mexico:				
Durango	June 1–30	1	1	
San Luis Potosi	Apr. 14–20	1	1	
Portugal:				
Lisbon	June 16–22	3		
Russia:				
Moscow	May 19–June 8	12	2	
Odessa	June 16–22	3		
Riga	June 9–22	7		
St. Petersburg	June 9–15	13	1	
Siberia:				
Vladivostock	May 17–23	1		
South Africa:				
Durban	May 26–31	2	1	
Spain:				
Cadiz	May 1–31		2	
Valencia	June 16–22	19	1	
Straits Settlements:				
Singapore	May 26–June 1		1	
Turkey in Asia:				
Beirut	June 16–22	5		
Turkey in Europe:				
Constantinople	June 17–23		8	
Venezuela:				
La Guaira	June 6	1		

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 29 to July 12, 1912.

[For reports received from Dec. 30, 1911, to June 28, 1912, see PUBLIC HEALTH REPORTS for June 28, 1912. In accordance with custom, the tables of epidemic diseases are terminated semiannually and new tables begun.]

CHOLERA.

Places.	Date.	Cases.	Deaths.	Remarks.
Ceylon:				
Colombo	May 19–25	1		In the port.
China:				
Amoy	June 1–8			Present in vicinity.
Swatow	June 1			Sporadic cases occurring in the port.
India:				
Bassein	May 5–11	14	13	
Bombay	May 19–June 1	61	53	
Madras	do	2	1	
Indo-China:				
Saigon	May 14–28	92	68	
Japan:				
Formosa—				
Tamsui	July 1			Present.
Russian Empire:				
Astrakhan	June 11	1	1	
Siam:				
Bangkok	Apr. 21–May 18		660	
Straits Settlements:				
Singapore	May 12–18	3	3	

YELLOW FEVER.

Brazil:				
Manaos	June 2–15		6	
Pernambuco	Apr. 16–30		3	
Chile:				
Tocopilla	June 8			Improving.
Ecuador:				
Duran	May 1–15	1	1	
Guayaquil	May 1–31	37	21	
Milagro	May 16–31	5	2	
Naranjito	May 1–31	4	2	
Yaguachi	May 16–31	1		
Mexico:				
San Juan Bautista	June 23–July 7	6		
Venezuela:				
Caracas	May 1–31		4	
La Guaira	May 1	1		

PLAGUE.

Chile:				
Iquique	May 26–June 9	9	6	
China:				
Amoy	May 20–June 1	46	40	Present in vicinity.
Hongkong	May 12–18	208	179	
Cuba:				
Habana	July 4	1		
Ecuador:				
Guayaquil	May 1–31	4	2	
Dutch East Indies:				
Java—				
Provinces—				
Kediri	Mar. 31–Apr. 6	2	2	
Madiven	do	3	3	
Passoeroean Residency	May 12–25	16	15	
Egypt:				
Alexandria	May 27–June 16	5	1	
Port Said	May 29–June 1	1		
Provinces—				
Assiout	May 25–June 1	2		
Beni Souef	May 30–June 6	3	3	
Carchieh	Apr. 28–June 4	1		
Fayoum	Apr. 28–May 4	1		
Minieh	May 27–June 5	13	2	

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 29 to July 12, 1912.

PLAGUE—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
India:				
Bombay	May 19–June 1	123	91	
Karachi	do	44	45	
Bombay Presidency and Sind.	Apr. 21–May 25	1,434	1,211	
Madras Presidency	do	64	57	
Bengal	do	443	406	
Babar and Orissa	do	4,796	4,167	
United Provinces	do	6,794	6,370	
Punjab	do	13,349	10,940	
Burma	do	125	108	
Central Provinces	do	283	238	
Mysore State	do	55	50	
Hyderabad State	do	217	175	
Central India	do	276	227	
Rajputana and Ajmere Merwara.	do	490	411	
Kashmir	do	229	134	Total for India Apr. 21–May 25: Cases, 28,555; deaths, 24,494.
Indo-China:				
Saigon	May 14–28	21	14	
Persia:				
Bushir	May 12–18	64	61	
Philippine Islands:				
Mariveles quarantine station.	Apr. 30–May 7	1	1	From s. s. Taisang from Amoy.
Porto Rico:				
Arroyo	To July 2	1		On a schooner from San Juan.
Carolina	do	2	2	
San Juan	June 21–July 10	12	11	Total June 14–July 10: Cases 24, deaths 16.
Santurce	July 2–8	7	3	
Siam:				
Bangkok	Apr. 21–May 18		1	
South Africa:				
Durban				Jan. 14–May 31: Cases 30, deaths 24, including report, p. 1060, Pt. I.
Straits Settlements:				
Singapore	May 5–18	5	4	
Turkey in Asia:				
Basra	May 20	1	1	
Jiddah	May 18	1		
West Indies:				
Trinidad				Total Apr. 1–June 13: Cases 11, deaths 7, including report, p. 1060, Pt. I; 3 of these cases were in Tunapuna.
Do	July 2	1		

SMALLPOX.

Algeria:				
Algiers	Jan. 1–Apr. 30	17		
Constantine	Apr. 1–30	4		
Australia:				
Fremantle quarantine station.	Apr. 19	1		From s. s. Malwa from London via Colombo.
Austria-Hungary:				
Bohemia	May 12–18	1		
Galicia	do	2		
Brazil:				
Pernambuco	Apr. 16–30		39	
Canada:				
Provinces—				
Ontario—				
Ottawa	June 9–15	1		
Windsor	June 12–22	2		
Quebec—				
Montreal	June 16–22	2		
Chile:				
Coquimbo	May 26–June 1	7		

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from June 29 to July 12, 1912.

SMALLPOX—Continued.

Places.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy	May 21–June 8			Present in vicinity.
Chungking	May 5–June 1			Present.
Hongkong	May 12–18	11	6	
Nangking	May 19–June 8			Do.
Shanghai	May 28–June 2		1	
Egypt:				
Cairo	May 14–27	4		
Port Said	do	2	1	
France:				
Paris	June 2–8	2	1	
Germany				Total June 2–23: Cases, 15.
Great Britain:				
Liverpool	June 2–8	1		
India:				
Bombay	May 19–June 1	97	83	
Karachi	May 19–26	1	1	
Madras	May 19–June 1	6	4	
Maulmaine	Jan. 1–May 4		85	
Indo-China:				
Saigon	May 14–20	3	2	
Italy:				
Leghorn	June 9–22	4		
Naples	June 2–22	13	1	
Palermo	May 26–June 1	3	1	
Turin	June 3–9	1		
Java:				
Batavia	May 12–25	5	1	
Mexico:				
Aguascalientes	June 9–16		1	
Frontera	July 7	1		
Guadalajara	June 9–15	1	2	
Juarez	June 16–22		1	
Mazatlan	June 19–25		1	
Mexico	May 19–June 1	94	43	
San Luis Potosi	Apr. 7–13	1	1	
Portugal:				
Lisbon	May 27–June 13	10		
Russia:				
Odessa	May 19–25		1	
Do	June 2–8	1	1	
St. Petersburg	May 27–June 8	18	5	
Warsaw	Apr. 21–May 11	17	9	
Siam:				
Bangkok	Apr. 21–May 18		41	
South Africa:				
Durban	Apr. 28–May 4	4	1	
Spain:				
Valencia	June 2–8	13		
Straits Settlements:				
Singapore	May 5–11	3		
Switzerland:				
Berne	May 5–11	2		
Geneva	do	1		
Lucerne	May 12–18	1		
Neuchatel	do	1		
Turkey in Asia:				
Beirut	May 26–June 8	30		
Turkey in Europe:				
Constantinople	May 27–June 16		37	

MORTALITY.

WEEKLY MORTALITY TABLE, FOREIGN AND INSULAR CITIES.

Cities.	Week ended—	Estimated population.	Total deaths from all causes.	Deaths from—									
				Tuberculosis.	Plague.	Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Typhoid fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Aberdeen	June 15	163,084	59	....	....	....	....	....	....	1	1	1	....	1
Do.	June 22	.....	54	....	....	....	....	....	....	....	....	....	....	1
Aguascalientes	June 30	40,000	60	1	....	....	....	2	1	....	4	....	6	....
Aix la Chapelle	June 8	157,774	41	4	....	....	....	....	....	....	....	....	....	1
Do.	June 15	.....	41	9	....	....	....	....	....	....	1	....	....	1
Amsterdam	June 22	582,674	95	11	....	....	....	....	....	....	....	....	4	....
Antwerp	June 15	316,604	79	7	....	....	....	....	....	....	....	2	2	4
Athens	June 24	250,000	98	19	....	....	....	....	....	....	2	....	....	1
Barcelona	June 22	591,272	215	30	....	....	....	....	....	2	....	....	2	1
Barmen	June 9	171,000	38	4	....	....	....	....	....	....	....	1	1	....
Batavia	June 1	216,630	13	....	....	....	....	1	2	....	....	....	....	....
Belfast	June 22	391,051	125	25	....	....	....	....	....	....	1	....	....	2
Belgrade	June 15	90,050	41	....	....	....	....	....	....	....	1	....	....	....
Birmingham	June 22	842,512	191	....	....	....	....	....	....	....	2	1	2	4
Bombay	June 8	979,445	663	....	26	21	....	23	....	....	....	....	1	....
Bordeau	June 29	253,000	86	14	....	....	....	....	....	....	....	3	1	1
Bremen	June 15	246,850	72	12	....	....	....	....	....	....	1	5	1	1
Do.	June 23	.....	65	8	....	....	....	....	....	....	1	2	....	2
Bristol	June 22	359,400	77	4	....	....	....	....	....	....	....	....	5	3
Brunswick	June 15	145,000	.....	4	....	....	....	....	....	....	7	14	....	....
Brussels	June 22	739,684	124	13	....	....	....	....	....	....	....	1	2	3
Budapest	June 8	1,000,000	.....	....	....	....	....	....	....	....	5	....	....	3
Do.	June 15	.....	.....	....	....	....	....	....	....	1	4	1	1	....
Calcutta	Apr. 27	890,493	550	38	119	87	....	2	....	....	....	....	....	....
Do.	May 11[1]	.....	449	25	77	44	....	5	....	....	....	....	1	....
Do.	May 18	896,067	419	33	53	45	....	2	....	....	....	....	....	....
Do.	May 25	.....	379	28	36	27	....	1	....	....	....	....	4	....
Chemnitz	June 15	305,000	76	3	....	....	....	....	....	....	....	....	2	1
Do.	June 22	.....	82	5	....	....	....	....	....	....	....	1	....	2
Christiana	...do....	248,000	51	10	....	....	....	....	....	....	....	2	3	....
Cognac	...do....	19,168	6	....	....	....	....	....	....	....	1	....	....	....
Cologne	June 15	530,544	134	14	....	....	....	....	....	....	....	1	4	....
Do.	June 22	.....	153	28	....	....	....	....	....	....	....	2	2	....
Colombo	June 1	227,026	104	13	....	....	....	....	....	7	....	....	....	....
Constantinople	June 23	1,300,000	185	26	....	....	....	8	....	2	4	....	8	....
Dundee	June 22	161,173	84	5	....	....	....	....	....	....	1	2	15	2
Durban	June 1	69,165	22	3	2	....	....	....	....	....	....	....	....	....
Edinburgh	June 22	321,200	97	11	....	....	....	....	....	....	2	....	1	3
Hamburg	June 15	953,079	234	28	....	....	....	....	....	2	1	6	2	2
Do.	June 22	.....	220	33	....	....	....	....	....	....	2	6	1	2
Havre	...do....	136,159	47	8	....	....	....	....	....	....	....	1	....	....
Hongkong	May 25	336,488	.....	....	168	....	....	1	....	1	....	....	....	....
Karachi	June 8	157,290	101	....	9	....	....	....	....	....	....	....	3	....
Kingston, Jamaica	June 22	57,379	.....	2	....	....	....	....	....	3	....	....	....	....
Kingston, Ontario	July 6	20,160	8	1	....	....	....	....	....	....	....	1	....	....
Kobe	June 9	425,023	113	....	....	....	....	....	....	1	....	....	....	....
Do.	June 16	.....	121	....	....	....	....	....	....	....	....	1	....	....
Konigsberg	June 22	252,200	78	9	....	....	....	....	....	....	....	....	....	1
Leeds	...do....	445,568	130	13	....	....	....	....	....	....	1	1	1	....
Konigsberg	June 15	252,200	104	16	....	....	....	....	....	1	....	....	2	....
Leipzig	June 15	605,755	132	23	....	....	....	....	....	....	....	2	1	....
Do.	June 22	.....	145	26	....	....	....	....	....	....	....	1	....	1
Leith	...do....	81,000	26	3	....	....	....	....	....	....	....	1	1	....
Liverpool	...do....	752,055	274	20	....	....	....	....	....	....	3	1	28	11
London	...do....	7,340,119	1,394	....	....	....	....	....	....	2	6	11	45	35
Lubec	June 22	100,000	23	....	....	....	....	....	....	....	....	1	....	1
Lyon	May 4	523,796	189	40	....	....	....	....	....	....	1	2	1	....
Do.	[2]May 11	.....	154	25	....	....	....	....	....	....	....	1	2	1
Do.	May 26	.....	185	21	....	....	....	....	....	....	....	2	....	....
Do.	June 2	.....	120	17	....	....	....	....	....	....	1	2	....	....
Do.	June 9	.....	155	32	....	....	....	....	....	1	....	2	....	....
Madras	June 8	518,660	328	....	....	1	....	....	....	1	....	....	2	....
Magdeburg	May 25	286,061	108	10	....	....	....	....	....	....	....	1	7	....
Do.	June 1	.....	81	10	....	....	....	....	....	....	....	1	....	....
Manchester	June 22	714,427	165	25	....	....	....	....	....	....	....	2	7	2

[1] May 4, p. 1064, Vol. XXVII.

[2] May 19 will appear in a subsequent report.

MORTALITY—Continued.

Weekly mortality table, foreign and insular cities—Continued.

Cities.	Week ended—	Estimated population.	Total deaths from all causes.	Deaths from—										
				Tuberculosis.	Plague.	Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Typhoid fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Mannheim	May 25	201,463	30	2	....	....	....	....	....	....	2	....	1	....
Do	June 8	201,864	45	9	....	....	....	....	....	....	....	....	2	3
Do	June 15	.....	40	11	....	....	....	....	....	1	....	1	....	....
Do	June 18	.....	29	10	....	....	....	....	....	....	1	1	2	2
Matamoras	June 30	15,000	5	2	....	....	....	....	....	1	....	....	....	....
Monterey	...do....	100,000	58	4	....	....	....	....	....	1	....	....	1	....
Montreal	July 6	466,197	167	23	....	....	....	....	....	5	1	2	....	3
Moscow	May 25	1,617,157	733	99	....	....	....	2	....	6	12	7	15	3
Do	June 1	.....	711	94	....	....	....	....	....	3	10	6	22	9
Do	June 8	.....	702	84	....	....	....	....	....	3	13	1	18	5
Nagoya	June 1	428,740	158	....	....	....	....	....	....	1	....	....	....	....
Do	June 8	421,297	147	....	....	....	....	....	....	....	....	1	....	....
Nantes	June 30	170,535	64	15	....	....	....	....	....	1	....	....	....	....
Newcastle-on-Tyne	June 22	269,193	75	9	....	....	....	....	....	....	....	2	....	....
Nottingham	June 15	260,000	66	7	....	....	....	....	....	1	....	....	7	3
Nuremberg	May 11	344,797	106	22	....	....	....	....	....	....	....	2	2	4
Do	May 18	.....	123	23	....	....	....	....	....	....	....	....	5	3
Do	May 25	.....	93	18	....	....	....	....	....	....	....	....	3	1
Do	June 1	.....	105	18	....	....	....	....	....	....	....	....	2	....
Do	June 8	.....	102	14	....	....	....	....	....	....	1	....	1	4
Odessa	June 15	575,000	168	19	....	....	....	....	....	4	1	1	1	....
Do	June 22	.....	194	21	....	....	....	....	1	2	2	....	1	1
Ottawa	June 29	90,000	39	6	....	....	....	....	....	....	....	....	....	....
Do	July 6	.....	31	1	....	....	....	....	....	....	1	....	1	....
Palmero	June 22	340,000	145	6	....	....	....	....	1	5	2	1	....	2
Paris	...do....	2,888,110	874	218	....	....	....	....	....	3	9	4	37	....
Port Antonio	June 29	49,190	.....	....	....	....	....	....	....	1	....	....	....	....
Prague	June 15	225,817	66	16	....	....	....	1	....	....	....	....	....	....
Do	June 22	.....	66	17	....	....	....	....	....	....	....	1	....	....
Quebec	July 6	78,200	.....	....	....	....	....	....	....	....	....	1	....	....
Rome	Jan. 6	564,913	245	26	....	....	....	....	....	1	1	3	1	....
Do	Jan. 13	.....	219	22	....	....	....	1	....	2	1	1	1	....
Do	Jan. 20	.....	212	15	....	....	....	....	....	3	2	3	....	1
Do	Jan. 27	.....	215	17	....	....	....	....	....	1	1	3	....	....
Do	Feb. 3	.....	194	15	....	....	....	1	....	1	....	....	1	1
Do	Feb. 10	.....	194	24	....	....	....	1	....	3	....	1	1	....
Do	Feb. 17	.....	190	20	....	....	....	1	....	1	1	1	1	2
St. Petersburg	June 1	1,962,400	889	129	....	....	....	....	2	12	13	4	72	10
Do	June 8	.....	873	120	....	....	....	5	1	6	17	7	62	6
Do	June 15	.....	803	125	....	....	....	1	1	16	10	4	50	7
San Luis Potosi	Apr. 20	82,946	69	4	....	....	....	1	....	1	....	....	....	1
Saulte Ste. Marie	June 29	12,500	7	....	....	....	....	....	....	....	....	1	1	....
Seoul	May 31	69,469	.....	2	....	....	....	....	....	....	....	....	....	1
Singapore	May 18	303,328	270	20	3	3	....	....	....	2	....	....	....	....
Do	May 25	.....	255	22	2	1	....	....	....	2	....	....	....	....
Do	June 1	.....	277	24	1	4	....	1	....	2	....	....	....	....
Southampton	June 22	120,896	30	1	....	....	....	....	....	....	1	....	1	....
Do	June 29	.....	34	1	....	....	....	....	....	....	....	2	2	....
Stettin	June 8	240,000	65	7	....	....	....	....	....	....	....	1	....	3
Do	June 15	.....	88	14	....	....	....	....	....	....	....	2	....	....
Stockholm	June 1	346,599	117	26	....	....	....	....	....	....	....	....	2	2
Do	June 8	.....	108	26	....	....	....	....	....	....	1	1	4	....
Do	June 15	.....	90	12	....	....	....	....	....	....	1	1	2	1
Stoke-on-Trent	...do....	237,153	51	6	....	....	....	....	....	....	1	....	....	....
Do	June 22	.....	66	3	....	....	....	....	....	....	1	1	1	....
Talcahuano	June 8	28,000	.....	3	....	....	....	....	....	....	....	....	....	2
Tapachula	May 7	25,000	39	3	....	....	....	....	....	....	....	....	....	4
Tientsin	June 1	465,000	25	9	....	....	....	....	....	....	1	....	....	....
Do	June 8	.....	35	3	1	....	....	1	....	....	....	....	....	....
Do	June 15	.....	35	9	....	....	....	....	....	....	1	....	....	....
Tripoli	June 16	50,000	48	3	....	....	....	....	1	4	....	....	....	....
Do	June 23	.....	48	1	....	....	....	....	....	2	....	....	....	....
Toronto	June 22	392,000	94	5	....	....	....	....	....	2	1	....	....	3
Do	June 29	.....	102	3	....	....	....	....	....	1	....	1	....	1
Trieste	June 15	235,999	80	....	....	....	....	....	....	1	....	1	5	....
Tripoli, in Barbary	June 9	50,000	52	3	....	....	....	....	....	6	....	....	....	....

MORTALITY—Continued.

Weekly mortality table, foreign and insular cities—Continued.

Cities.	Week ended—	Estimated population.	Total deaths from all causes.	Deaths from—										
				Tuberculosis.	Plague.	Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Typhoid fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Turin	June 15	430,770	151	15	....	....	....	....	....	....	....	....	....	1
Do	June 23	....	155	15	....	....	....	....	....	3	....	....	....	....
Valencia	June 15	235,000	115	9	....	....	....	1	....	1	....	1	....	....
Do	June 22	233,348	64	4	....	....	....	1	....	....	....	....	....	....
Vancouver	June 29	110,000	22	3	....	....	....	....	....	1	....	....	....	1
Veracruz	..do....	32,000	47	8	....	....	....	....	....	....	....	....	....	....
Vienna	June 1	2,081,335	639	96	....	....	....	....	....	....	5	7	15	1
Do	June 8	....	614	120	....	....	....	....	....	1	5	8	11	2
Vigo	..do....	41,500	18	1	....	....	....	....	....	....	....	2	....	....
Do	June 15	....	18	2	....	....	....	....	....	....	....	1	....	....
Vladivostok	May 5	90,190	13	1	....	....	....	....	....	....	1	....	1	....
Do	May 13	....	8	6	....	....	....	....	....	....	....	1	2	....
Warsaw	May 4	821,369	241	36	....	....	....	1	....	....	3	....	....	4
Do	May 11	....	258	26	....	....	....	4	....	1	4	2	2	....
West Hartlepool	June 15	63,932	16	....	....	....	....	....	....	1	....	....	....	....
Do	June 22	....	9	....	....	....	....	....	....	....	....	....	....	....
Windsor	June 29	17,918	3	....	....	....	....	....	....	1	....	....	....	....
Winnipeg	June 22	135,430	46	2	....	....	....	....	....	....	....	2	2	....
Do	June 29	....	47	11	....	....	....	....	....	....	3	....	1	....

MORTALITY—FOREIGN AND INSULAR—COUNTRIES AND CITIES (Untabulated).

ALGERIA—*Algiers.*—Month of May, 1912. Population 172,397. Total number of deaths from all causes 316, including measles 1, tuberculosis 49, typhoid fever 3.

BRITISH BURMA—*Rangoon.*—Month of April, 1912. Population 293,316. Total number of deaths from all causes 798, including scarlet fever 59, smallpox 57, tuberculosis 29, typhoid fever 3. Cases reported: Smallpox 154.

FRANCE—*Saint Etienne.*—Two weeks ended June 15, 1912. Population 150,000. Total number of deaths from all causes 99, including diphtheria 1, tuberculosis 12. Cases reported: Diphtheria 2, scarlet fever 1.

GERMANY—*Strassburg.*—Month of May, 1912. Population 182,426. Total number of deaths from all causes 258, including diphtheria 3, measles 11, scarlet fever 1, tuberculosis 39, typhoid fever 1. Cases reported: Diphtheria 22, scarlet fever 85, smallpox 1, tuberculosis 5, typhoid fever 4.

GREAT BRITAIN.—Week ended June 15, 1912.

England and Wales.—The deaths registered in 95 great towns correspond to an annual rate of 11.9 per 1,000 of the population, which is estimated at 17,639,816.

Ireland.—The deaths registered in 22 principal town districts correspond to an annual rate of 17.2 per 1,000 of the population, which is

estimated at 1,157,014. The lowest rate was recorded at Queenstown, viz, 00.0, and the highest at Sligo, viz, 28 per 1,000.

Scotland.—The deaths registered in 18 principal towns correspond to an annual rate of 14.8 per 1,000 of the population, which is estimated at 2,182,400. The lowest rate was recorded at Kirkcaldy, viz, 5.2, and the highest at Hamilton, viz, 21.2 per 1,000. The total number of deaths from all causes was 620, including diphtheria 4, measles 27, scarlet fever 1.

HAWAII—*Honolulu.*—Three weeks ended June 22, 1912. Population, 39,306. Total number of deaths from all causes 52, including tuberculosis 11. Cases reported: Tuberculosis 9, typhoid fever 1.

PORTO RICO—*Ponce.*—Three weeks ended June 29, 1912. Population, 27,952. Total number of deaths from all causes not reported: Tuberculosis 4. Cases reported: Tuberculosis 7. Five hundred and nineteen cases of hookworm disease were reported.

San Juan.—Four weeks ended June 29, 1912. Total number of deaths from all causes not reported, including tuberculosis 1. Cases reported: Diphtheria 1, tuberculosis 25, typhoid fever 11. Fifteen cases of hookworm disease were reported.

SPAIN—*Cadiz.*—Month of May, 1912. Population 67,306. Total number of deaths from all causes 195, including measles 2, smallpox 2, typhoid fever 1.

SPAIN—*Huelva.*—Month of May, 1912. Population 28,982. Total number of deaths from all causes 79, including measles 2, tuberculosis 11.

By authority of the Secretary of the Treasury:

RUPERT BLUE,
Surgeon General,
United States Public Health and Marine-Hospital Service.

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